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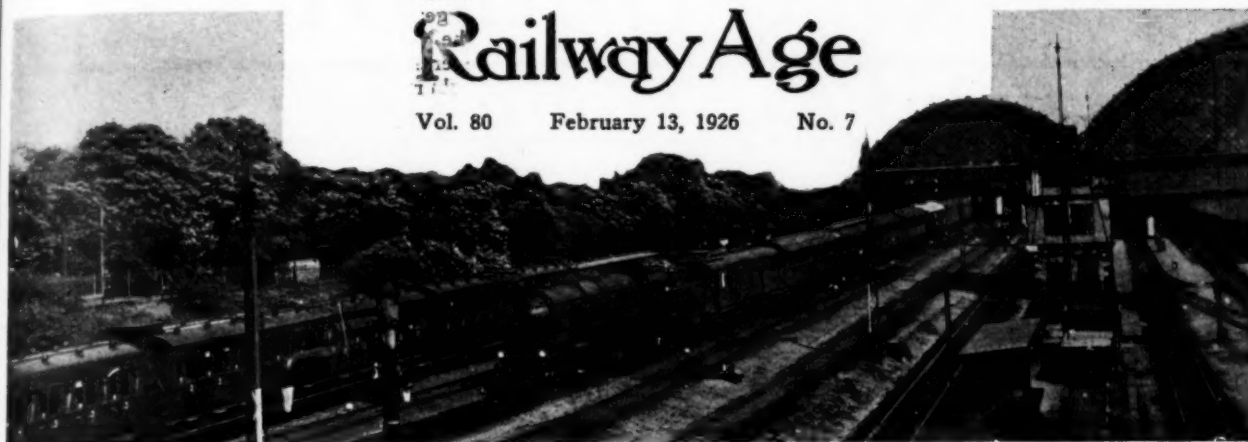
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Railway Age

Vol. 80 February 13, 1926 No. 7



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Railway Age

Vol. 80, No. 7

February 13, 1926

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Why Not Maintenance Costs Also for Train Control?

A STATEMENT of the cost of installing train stop or train control appears for the first time in the six final inspection reports issued by the Interstate Commerce Commission recently with respect to the installations on the Southern Pacific, the Galveston, Harrisburg & San Antonio, the St. Louis-San Francisco, the Norfolk & Western, the Great Northern and the Chicago, Burlington & Quincy. This new practice of the commission in including an accurate and unbiased detailed statement of these costs in its reports will be of decided value to the various railroads that are interested in knowing what the different types of train stop or train control actually cost under the various methods of construction and application on different roads. After a number of such reports are available the carriers will have a definite basis for the consideration of future installations, not only in determining whether a given volume of traffic requires or justifies the more complete systems including speed control, but also to assist in deciding between different types of equipment. However, no equipment or facility can be judged solely on first cost; the maintenance and operating charges are equally important, and such figures should be compiled and made public to supplement the data on first cost in order that all carriers may benefit by the experience of others.

The Value of a Steady Job

It is impossible to estimate the loss incurred by curtailment of operations and consequent reduction of force brought about by seasonal fluctuations of railway traffic. Stabilization of employment has been looked upon as an ideal which erratic conditions peculiar to railroad operation has made extremely difficult to approach, yet the merit of which remains unquestioned. One large road, however, has made an experiment, the results of which suggest possibilities. The chief mechanical officer of this railroad, presenting his annual department budget, succeeded in gaining approval of a plan which, in effect, gave him absolute authority to expend his appropriation as he saw fit. He invited the employees' representatives to meet with him for a discussion of departmental problems during which figures were presented to them showing the effect of "short-time" periods on their average daily earnings. A plan was presented and accepted which called for a full year's continuous employment at the then existing scale of wages, a slight proportional permanent reduction in force being made to obviate the necessity of requesting any increase in appropriation. This plan has now been in operation for over a year and the results have been highly encouraging. The men on that road work with a better understanding of the problems which affect their earnings. They have been able to budget their personal expenses to better advantage because the continuity of their earnings is un-

broken throughout the year. Relieved of the spectre of the "lay-off" they are giving their whole-hearted efforts to their jobs and this has included a more intelligent interest in methods and practices which has resulted in the making of valuable suggestions for improvements of many kinds. The net result has been a striking reduction in maintenance of equipment expenses. There is probably not a road in this country that has not realized the losses incurred by seasonal reductions of force or working time and the curtailment of repair work. Here, however, is one road that, in one department at least, has capitalized on the value of a steady job.

Locomotive Conditioning At Terminals

ATTENTION is now being focused as never before on enginehouse inspection and maintenance methods because of their vital relation to the "on time" movement of trains. Engine failures, the "bug bear" of operating and mechanical men alike, occur in direct proportion to the care with which locomotives are inspected following each trip and checked to assure the correction of reported defects. Many railroads are showing a marked increase in locomotive miles per engine failure and one road in the southwestern region, for example, which already had a good record in this regard during 1924, made a reduction in engine failures of 40 per cent during 1925. The necessity of giving attention to minor defects which appear relatively unimportant is indicated by the fact that of 211 engine failures on the road mentioned, 29 were caused by leaks and 31 by failures in heating. Four were caused by inability to make steam and the balance by broken and otherwise defective parts. Still further improvement in enginehouse inspection and maintenance methods may be expected as a result of exhaustive studies now being made of this subject by the individual roads and by the Committee on Locomotive Utilization of the American Railway Association.

The North Jersey Transit Plan

THE North Jersey Transit Commission has issued another report to the New Jersey legislature elaborating its plan presented a year ago (see *Railway Age*, February 7, 1925, pages 351 and 368) for improving transportation between Northern New Jersey and New York City and between the Jersey communities themselves. The plan calls for a rapid transit subway loop line connecting all the New Jersey railroads with Manhattan Island, having stations every three-quarters of a mile on the island, so as to distribute and collect all passengers without their having to use existing transit facilities in New York. Further development would extend rapid transit lines in New Jersey to relieve the railroads, which are approaching the capacity of their

existing facilities. Eventually, according to the plan, the railroads' suburban trains would use the New York loop line and distribute their passengers the same as other rapid transit trains; at first, however, railroad passengers would have to change to the loop trains. The complete plan would cost \$382,000,000 and the interstate loop alone \$154,000,000. These costs it is proposed to place either entirely upon the users of the facilities or, perhaps, partly upon the taxpayers. It is significant to note that, if they are placed entirely upon the users, the fare which will have to be charged from the Jersey side of the loop to Manhattan alone will be about 15 cents—which is as much as the railroads are now getting for carrying a commuter as many miles in this territory. The strongest argument which the commission advances in favor of its plan is that the territory in question now has a population of 2,000,000 and that it ought to have 6,000,000. If this is true, then the principal benefits from carrying out the plan will go to the landowners and the logical manner to pay for the larger share of the work would appear to be by taxation in the district benefited. At any rate, it is a relief to see that the commission does not expect the railroads to finance the work. That they have an interest in it, however, goes without saying. Some plan for caring for the transportation needs of the area must be worked out soon. There is no likelihood that this plan or any other will get beyond the stage of talk for a year at least. Meantime the problem daily becomes more serious. If the railroads can do anything to encourage serious discussion in the interim and thus speed the day when actual work will commence, they will be serving their own interests and those of the communities in the territory.

Interest on Debts to Government

THE United States government has made a profit of over \$40,000,000 during the past five years on the indebtedness of the railways to it which resulted from the period of federal control, by collecting interest from the railways at 6 per cent while it has been able to borrow the money at around 4¼ per cent, according to a compilation made by the Railroad Owners' Association, which is urging the passage by Congress of a bill for the refunding of the remaining indebtedness at a lower rate. According to the association's compilation, taken from reports of the Secretary of the Treasury, the railway indebtedness to the government had been reduced from \$680,438,653 in 1921 to \$316,300,324 on June 30, 1925. Later figures would show a still greater reduction as many roads have made additional payments since that time. Six per cent interest on the latter amounts to \$18,978,019 a year, or \$5,535,255 a year more than the cost of the money to the government at 4¼ per cent. In 1921 the excess on this basis amounted to \$11,907,676. In 1922, after the principal had been reduced, it was \$7,988,839, in 1923 it was \$7,339,205, and in 1924 it was \$7,864,114, a total for five years of \$40,635,092, a slight offset against the large losses sustained by the government during its period of operating the railways. Incidentally the association's compilation shows that considerable progress has been made by the railways in paying off their indebtedness to the government. A large part of the total still outstanding is owed by three roads, the Boston & Maine, the Chicago, Milwaukee & St. Paul and the New York, New Haven & Hartford. The amount due on account of railroad securities taken by the government under the federal control act had been reduced from \$64,097,250 in 1921 to \$25,950,000. The equipment notes taken by the director general of railroads for cars and locomotives purchased during the federal control period had been reduced from \$311,260,300 to

\$1,253,000. The notes given by the railways in connection with their settlements with the Railroad Administration had been reduced to \$108,134,000 and the loans made by the Interstate Commerce Commission from the \$300,000,000 loan fund provided for by the Transportation Act had been reduced to \$181,063,324. An effort to have the 6 per cent interest rate reduced was made in the last session of Congress but was not brought to a vote. The new bill proposed by the association has been introduced in the Senate by Senator Gooding and in the House by Representative Merritt, authorizing the Secretary of the Treasury, who is now also director general of railroads, to make arrangements with the railways for refunding their indebtedness for a period of not to exceed 40 years at a rate of not less than 4 per cent.

Railway Wages and "Profits"

IN the January 16 issue we took occasion to point out some of the statistical and other absurdities in a statement published in *Labor*, the organ of the railway labor unions, based on a computation by Arthur Keep, editor of the *Railroad Telegrapher*. This purported to demonstrate a large increase in railway "profits per employee," culminating with a figure of \$786 for 1924, by dividing "net revenues" by the number of employees. *Labor* for February 6 publishes a reply by Mr. Keep, which it says "sustains his former statement," but in which he apparently accepts one of the criticisms made by the *Railway Age*, although he refers to it as a "minor complaint" and "immaterial." He now divides the "net railway operating income" for 1925, as estimated by Julius H. Parmelee of the Bureau of Railway Economics in our January 2 issue, by the estimated number of employees for that year, and gets a "profit per employee" of \$638.42, as compared with \$555.43 for 1924. Net railway operating income for each of those years was over \$400,000,000 less than net operating revenues which he had previously used to represent "profit," most of the difference being accounted for by the taxes paid by the railways.

Mr. Keep denies having made any allegation that "the railway worker is exploited," says he has "complied with every demand of the *Railway Age* and gone to it for his figures, and that he has simply tried to show that "as wages have increased railroad profits have gone up." However, although he has receded somewhat in the amount of his "profit per employee," as that for 1925 is apparently large enough for his purpose, he continues to refer to it as "profits off each individual worker," and "from each employee," while the headline over the article calls it profit "on each rail employee." As he evidently expects the *Railway Age* to be satisfied with this it becomes necessary to repeat what we had endeavored to point out before, that the so-called "profit" represented by the net operating income was by no means earned entirely off, on, from or by man-power, but was made possible not only by the work of the employees but also by the enlargement and improvement of the railway plant, representing a large increase in the investment, both in the aggregate and "per employee." This increase in investment, although the net operating income for 1925 amounted to a greater number of dollars than that for any previous year, has not yet earned anything like a proportionate increase in return, while the average wage received by the employees has increased enormously, and it will take a much larger "profit per employee" than was earned even in 1925 to give any one a right to complain of the "profit per dollar."

Of course, we hardly expect Mr. Keep or *Labor* to

worry much about the profit per dollar, as long as the wages of their constituents are paid before those of their co-workers, the dollars. What we object to is the way they try to mislead their many readers by such a simple process as taking any large sum of railway dollars,—it seems to make little difference which particular account they select—and dividing it among the employees with the implication that it was taken from them. Railway accounts naturally run into large figures but because a figure is large is no evidence that it is too large or even large enough.

Labor Union-Management Co-operation

THE Taylor Society and the co-operating organizations which staged the meeting on "union-management co-operation on the railways," in New York last week, have done a real service in attempting to have an authoritative statement of the principles and benefits of this plan placed on record in a dignified, detached and scientific atmosphere. This plan, more familiarly known as the Baltimore & Ohio co-operative plan, is an effort on the part of the organized shop crafts and the management to co-operate in the interests of greater efficiency and more economical operation, the labor unions retaining a consulting engineer to advise with them.

Among those in attendance at the meeting was a large group of engineers and economists whose interest had been stimulated by the various reports during the past year or two of this labor union-management co-operative movement. They were interested in securing accurate, first-hand information as to the principles upon which this movement is based and the benefits which have been derived from it. Judging from the expressions of several of them, it is doubtful whether this group as a whole was very greatly impressed by the extent of the practical results thus far obtained, as outlined by the different speakers, although there is no question but that they recognized the value of the spirit of the movement.

Captain Beyer went into almost too exhaustive detail about the workings of the plan, and his comments upon the benefits, while logically presented and in the utmost sincerity, cited a minimum of concrete results which without question can be credited to the co-operative movement, or rather are not being obtained on other roads under other forms of co-operative endeavor. Mr. Jewell's comparatively short and crisp appraisal from the standpoint of the labor unions was followed with most critical attention and apparent approval, as was the address by Sir Henry Thornton, whose personality and humor were warmly welcomed. An abstract of the addresses will be found elsewhere in these pages.

There was no discussion, the program being limited to the three addresses and the remarks of the presiding officer. For this reason it might have been better if Captain Beyer had not referred in somewhat disparaging terms to so-called "employee representation" or "company unions." Indeed, his case would probably have been strengthened had he omitted all reference to "employee representation." It is generally recognized that the standard labor unions, realizing the changing conditions in industry and transportation and in our economic and political structure, have raised and broadened their platforms, as have also the managements in dealing with the employees, because both sides are coming to recognize that no one gains from a fight based upon the exercise of physical force and that, after all, there is a wider field in

which the interests of the workers, the managements and the public are mutual.

The railroad shop crafts are to be commended for retaining an expert to advise them as to how to co-operate with management in eliminating waste and increasing production. Undoubtedly this has produced real and tangible results for both the men and the managements. The fact must not be overlooked, however, that those workers and managements which prefer "employee representation" have also been making progress, although this development, like union-management co-operation, is yet largely in an experimental stage in various forms on different railroads.

In his five typical examples of problems met by union-management co-operation, it would appear as if Captain Beyer assumed that these same problems were not being recognized and solved by other forms of organized co-operation. For instance, the last few years have witnessed almost a revolution in many railroad shops, whether union or non-union, in improving conditions of employment in respect to safety, health, ventilation, lighting and sanitation. A study of those roads which have made material progress in these respects will show that marked improvement is not confined to those whose workers are members of the standard railroad unions. The same thing is true of conserving materials, fuel and supplies. Workers on many roads which are not unionized so far as the shop crafts are concerned, are showing commendable individual interest in movements or campaigns of this sort.

Under stabilization of employment Captain Beyer made the definite statement that the annual wage income per shop employee on the Baltimore & Ohio during 1925 had been increased over \$50 and that in some shops of the Canadian National this income had been increased by 10 and more per cent during the last year. This, of course, may be an indication of the improved stabilization of employment among the shop crafts on these two roads. Unfortunately statistics are not available for similar comparisons with other railroads; it would not be surprising, however, if many others equally favorably located as to traffic conditions, could show as good or better results for the same period. Railroads, generally, as well as the industries, have recognized the advantages of stabilized employment and have been doing much in many ways to improve conditions in this respect.

The fourth point made by Mr. Beyer was the securing of traffic, the suggestion being that the standard unions of employees could be of great help in this respect, the railroad employing union men being placed on the same basis as products carrying the union label. Just what is meant, however, by this? The train service brotherhoods, whose members actually do the work of moving the trains, are almost 100 per cent organized, so that most of the roads are labor union roads in this respect. Then, too, we must remember that the Baltimore & Ohio and the Canadian National were not pioneers in this matter of encouraging the individual employees of all departments to secure traffic. A large number of railroads today, the shop crafts of many of them working under an employee representation plan, are making really remarkable records in securing traffic through the enthusiasm and co-operation of their employees.

While Captain Beyer presented figures about the growth of Baltimore & Ohio business some of his conclusions are not at all clear to us. Moreover, so many factors are involved that it is possible to determine only after the most painstaking research, what proportion, if any, of this increase in gross is due to union-management co-operation. For one thing the fact must not be overlooked that the Baltimore & Ohio, under President Willard, has been steadily improving its property and

facilities over a period of years by large capital expenditures, which have made it possible in recent years to improve the standard of service and thus secure a larger amount of business. On the other hand, there can be no question but that there has been a big improvement in morale on the Baltimore & Ohio in recent years, although the same thing can be said of many other railroads.

It is quite generally recognized that the employees expect a financial return from gains due to co-operation. This may be in the form of stabilization of employment, which increases the income for the year, or it may take the form of better wages, the latter making the strongest appeal to the workers. That a solution of this problem has not yet been found, was frankly admitted.

It is not the purpose in these comments to throw cold water upon or criticise union-management co-operation, which was apparently first suggested in the railway field by Captain Beyer and which promises to be an important factor in the interests of more efficient production, with resulting benefits to all concerned. We are in a new era and managements and workers generally are recognizing the fact that their interests are mutual and that they must co-operate to their own best interests. The *Railway Age* does question the disparaging statement about other plans of organized co-operation. The problem of improving human relationships in the railway industry is a big one and unquestionably the union-management co-operative program is a significant attempt at its solution. But others are approaching the same problem with equal sincerity but with a somewhat different technique. Should not every one who has something concrete to offer be given his chance? Is mutual distrust necessary between persons working at the same problem on different lines? The problem is difficult enough to merit much varied study and experiment. The more ways it is approached the better. It will be a sad day for progress in human relationships when somebody gets a monopoly on the problem and can force his solution, ending all experiments by others.

Significance and Effect of Improved Passenger Revenues

FOR the third month in succession passenger revenues of the Class I railroads in November exceeded those for the same month in the preceding year. The increase was approximately \$2,300,000, passenger revenues in November, 1925, being \$81,095,458 and in November, 1924, \$78,791,136. Passenger revenues of the Class I roads in September and October exceeded those for the same months in 1924 by approximately \$2,500,000 and \$3,600,000, respectively. In November the increase in passenger revenues as compared with the same month in 1924 was due to large increases in such revenues in the eastern and southern districts which overcame a decrease in the western district.

The upward turn in the tide of passenger revenues began in April, 1925. In March passenger revenues had been approximately \$8,000,000 less than those of March, 1924. In April, however, the difference in favor of the preceding year was only \$7,000,000. In May and June this difference had decreased to approximately \$3,000,000. In July, 1925, however, passenger revenues actually exceeded by some \$600,000 the passenger revenues for July, 1924.

This was the first instance in a long time of a month's passenger revenues exceeding those for the same month

of the previous year. August witnessed a set-back, passenger revenues for this month of 1924 exceeding those in 1925 by about \$600,000. As noted, however, the set-back was only temporary and the improvement continued and grew in the next three months. It is probable that the comparative decline of passenger revenues in August was due, not to a falling off in business, but to the fact that so many low rate excursions were run. This is borne out by the statistics on revenue passenger miles which show that in this respect 1925 began and invariably continued to exceed 1924 in the early part of June.

The effect of the improvement in passenger revenues in the latter months of the year on the total passenger revenues for the 11-month period is striking when comparison is made with the total passenger revenues for the first six months of both 1925 and 1924. In the first six months of 1925 passenger revenues totalled \$498,775,297, which was approximately \$30,000,000 less than the total passenger revenues in the first six months of 1924, when they were \$529,048,673. Total passenger revenues for the first 11 months of 1925, however, which were \$963,916,440, were only \$22,000,000 less than for the first 11 months of 1924. When the figures for December, 1925, have been compiled it will be found, of course, that passenger revenues in 1925 were less than those in 1924, but the expectation is that the disparity will be still further reduced and the tendency toward improvement will be more clearly marked.

What conclusions may be drawn tentatively from these figures? First and most important is the indication that passenger revenues have touched bottom and are now definitely on the increase. The expectation appears to be well founded that passenger revenues hereafter will show increases, although possibly not so large as prior to five years ago.

Second, the improvement in passenger revenues appears to allay fears that the private motor car and the motor bus will continue to take business from the railways indefinitely or until the short haul passenger business of the railways has entirely disappeared. Although the railways may be handling some passenger business now which the private motor car and the motor bus will eventually get, it seems probable that such losses are about at an end and that future losses will be more than made up by increases in through business and by the return to the railways of passenger business of medium length hauls which, on the grounds of comfort, convenience and economy, should never have been lost.

There is no question that the convenience of the motor bus and the private automobile has been the primary cause of their popularity and of the loss of passenger business on the railways. On the other hand, the novelty of motor transportation has probably been a factor of some importance. As this novelty wears off the economic factors of convenience and expense will govern more and more the public choice of the kinds of transportation offered. Reports from parts of the country where bus transportation has been most highly developed, notably California and Indiana, indicate that the buses are not carrying as many passengers now as they have been carrying. Some will cite this as proof that the private motor car is taking business away from the buses as it has from the railways. While it would be difficult to prove this untrue, it is more probable that the motor bus transportation industry, in some districts, at least, is simply feeling the effect of over-expansion and of the departure of its novelty; and that the result of the present decline—where there is a decline—will not be that motor bus transportation will disappear but that its services will be confined more strictly to those fields where they are economically justified.

Coming in the face of a widespread and increasing

interest among the railways in the adaptability of the motor bus to their own uses, the improvement in passenger revenues might be expected to soothe railway officers into a feeling that they need not continue to worry about their passenger business, and to result in a diminishing of their interest in the possibilities of their adoption of motor transportation. This should not, and probably will not, be the case. The fact that passenger revenues are increasing and that bus companies in some parts of the country are suffering a decrease in business does not prove that motor transportation will not remain and expand still further. A very grave mistake would be made if railway officers, on account of increases in passenger revenues, permitted themselves to fail to give further consideration to the factors in favor of and against the use on their own part of motor buses.

The passenger revenues of the Reading have been gaining on those of recent years, but this has not affected the notable plans of that company for the extension and co-ordination of railway and highway service over the entire territory in which it operates. The railways may congratulate themselves on getting an increased passenger business, but it would not be wise for them to permit this to cause them to give less attention to the really important question facing them—Can we improve the service offered to our patrons, while effecting reductions in the cost of providing it, by the adoption of motor highway transport, the use of rail motor cars, or other means?

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Comparing Two Movements in Brine Tank Refrigerator Cars. Results of temperature observations of two cars of apples shipped from British Columbia to Montreal. Trans. Cir. no. 33. 5 p. Pub. by Dominion Dept. of Agriculture, Fruit Branch, Ottawa, Canada. Apply.

Handbook of the Railway Fire Protection Association. While the recommendations and suggestions in this handbook are intended primarily for railroad officials and employees it can be profitably consulted also by chemists, stock and dairy farmers, those in charge of camps, and others entrusted with prevention of fire losses in properties. 312 p. Pub. by Railway Fire Protection Association, c/o Secretary, B. & O. R.R. Bldg., Baltimore, Md. \$1.

Political Pressure in Regulation of Railroad Rates, by Railway Business Association. Analysis of various bills now before Congress. 6 p. Pub. by Railway Business Assn., Philadelphia, Penna. Apply.

Three Quarters of a Century. Historical sketch of Illinois Central System signed by President Markham and issued in connection with 75th anniversary, Feb. 10. 10 p. Pub. by Illinois Central System, Chicago, Ill. Apply.

Periodical Articles

The Electrification of France, by Joseph Leeming. Includes note of progress of electrification of the 8000 miles of railroads which is part of program. American Review of Reviews, Feb., 1926, p. 185.

New York City's First Railroad, the New York & Harlem, 1832-1867, by Joseph W. Greene, Jr. Illustrated from old prints. New York Historical Society Quarterly Bulletin, Jan., 1826, p. 107-123.

The Santa Fe's 80,000 Salesmen, by John C. Emery. "Those salesmen are the 80,000 employees of the Santa Fe. . . ." p. 64. Nation's Business, Feb., 1926, p. 64-65.

Letters to the Editor

Further Discussion on Car Derailments

BALTIMORE, Md.

TO THE EDITOR:

In my article published in the January 16 issue of the *Railway Age*, the rolling mass of the loaded car was stated as the principal factor in derailments. While this is true of the high gravity coal car, it should be said that it is not the principal cause for derailments of rigid, all-steel box cars.

The open top coal car is sufficiently flexible to permit the car to stand on a track excessively out of surface, without unloading the wheels on any corner of the car, when there is no side-bearing clearance. The modern all-steel box car is, however, so stiff that we can only prevent the load from being removed from the wheels on one corner of the car by spring action in the truck itself.

We are only interested, of course, in what might be termed the "weave" of the track in a length equivalent to the truck centers of a box car and the extent of this weave can be considered as the amount that the elevation of the rail between the two wheels on one corner of the cars is out of the plane of the other three similar points on the rails.

We frequently find conditions where the weave of the track is as much as $1\frac{1}{2}$ in. or $1\frac{3}{4}$ in. and it would certainly seem desirable to have our stiff box cars go over a track with as much as $2\frac{1}{2}$ in. weave without taking the load off the wheels on any one corner of the car. This will, of course, necessitate long travel springs. It is obvious that soft, long travel truck springs will lend themselves more readily to car roll than short travel, stiff springs.

So it becomes important with the long travel spring, to have some real absorptive action to prevent car rolling.

It is well understood that there are two causes of truck spring failures; one from springs going solid under car roll, which puts an excessive fibre stress in the spring at some point in the coil; the other from fatigue, which comes from a large number of workings through a large range of stress. Work absorption will largely prevent both types of failure because, by reducing the car roll, the range of stress causing fatigue failure will be largely reduced, and when the working range of the springs is reduced by elimination of car roll they will not go solid and break.

It would seem, therefore, that the spring travel on an open top coal car is of no particular importance, and all that is desired is to absorb work and prevent the car roll. On rigid box cars a long spring travel is imperative, with the obvious necessity for absorption to stop the resulting increased tendency to roll.

Car designers have considered the desirability of cross equalization of the load from one side of the truck to the other.

This problem is difficult and expensive because with a rigid box car it is just as essential to have cross equalization with the light car as with the loaded car and there must be provision for satisfactorily normalizing the car body, both when running light and fully loaded.

T. H. SYMINGTON.



The North or Entrance Elevation of the Station Head House

St. Paul Union Depot Completed

Limitations of site and demands of traffic imposed a nine-year construction program

By G. H. Wilsey

Chief Engineer, St. Paul Union Depot Company

THE new passenger terminal improvements of the St. Paul Union Depot Company, which have been under construction since 1917, are now completed, with the exception of five platforms on newly made fill, which will not be built until the fill has settled. Although construction work started in 1917, the work of planning had commenced in 1911, over one hundred schemes being prepared and discarded before the one finally decided upon was selected.

The plan which was finally adopted in the spring of 1917, and to which the construction work has conformed, with minor changes, is described herewith. The headhouse is located in the block bounded by Sibley, Fourth, Wacouta and Third streets. There are 8 stub and 13 through passenger tracks, as well as four freight tracks, two of which belong to the Chicago, Milwaukee & St. Paul, elevated about 19 ft. above those in the old station. The waiting room is over the tracks, leading to platforms by stairways, and connected to the headhouse by a concourse on a grade of about two per cent, the headhouse floor being about 2½ ft. lower than the waiting room floor.

Limited Working Space Imposed

Complex Construction Plan

The old station building, destroyed by fire in October, 1913, and the station yard occupied the space south of Track 8 in the new layout. The ground between the old yard and Third street, and between Sibley and Wacouta streets, was occupied by warehouses, used as a temporary depot. The old yard was inadequate, which precluded the abandonment of any tracks before new facilities for traffic were provided. This made it necessary to divide the work into periods or stages, each of which had to be completed and turned over to operation before work could commence on another. These periods were as follows:

1. Build the headhouse thus releasing the old warehouse used as a depot.
2. Build the structure to support the first six tracks with platforms and train sheds, and lay tracks, thus releasing six tracks in the old yard. Build the concourse and a portion of new waiting room.
3. Build an addition to the waiting room on the structure for supporting the second six tracks, with platforms and train sheds and lay tracks. Four of these were through tracks, so four through tracks in the old yard were thus released.
4. Build the next four tracks complete, releasing all of the old yard except the freight transfer, and complete the waiting room.
5. Build the next three tracks complete releasing the remainder of the old yard.
6. Complete the work.

It will be seen that there were six complete construction jobs, explaining why it has taken seven years to build the station. It may be added that delays due to the world war account for two years' lost time.

The work of the first period was described in the *Railway Age* of May 21, 1920, page 1442; that of the second period in the issue of December 17, 1921, page 1200; and that of the third period in the issue of March 20, 1924, page 827. This article deals more particularly with the work of the fourth, fifth and sixth periods.

The remaining 90 ft. of the waiting room was completed in December, 1924, extending to the platform between Tracks 17 and 18. A passageway from the south end to an elevator and stairway between Tracks 19 and 20 was completed in December, 1925.

The train sheds are of the butterfly type, built of steel framing, and with a wooden deck extending to within 18 in. of the center line of track. The sheds for the fourth, fifth and sixth sections were erected in 1925, on newly made fill. Separate spread footings were built for each column, with the top four feet below the platform.

The shed columns were erected on wooden wedges and anchored, but were not concreted, as it may be expected that considerable settlement will take place. When permanent platforms are built, the columns will be concreted below the platform line. Two six-inch H-section columns were used for wide sheds instead of a single column; but both columns were supported on a single spread footing to prevent racking due to uneven settlement.

The St. Paul Union Depot is the transfer point for mail and express for the northwest. An average of 1,300 tons



The West Approach

of mail is handled daily through the station, the greater part of which is transfer business which has to pass through the terminal railway post office for sorting and distribution. It was, therefore, necessary to provide commodious quarters for this business and make allowances for future growth. In fact, before the work was completed, it was thought necessary to increase the mail quarters beyond those originally planned and 50,000 sq. ft. of space was added. For the purpose of handling mail, express, baggage and milk, 300,000 sq. ft. of floor space has been provided, entirely under the tracks.

All of the track structure, except the additional 50,000 sq. ft. in the southeast corner along Sibley street, was completed in the third period, and has been previously described. It is a reinforced concrete flat-slab structure on pile foundations.

Connection between the under-track rooms and track level is made by elevators, ramps and chutes. The elevators and chutes have been described in previous articles. The original intention was to provide only elevators, but, after three years of service, it was found that elevators were too slow for the volume of business to be handled, and two ramps, one at each end, were added, at the sacrifice of a station yard track.

Subways for Street Traffic

Subways carrying Sibley, Jackson and Second streets under the tracks were built during 1924 and 1925. The subways at Sibley and Jackson streets have columns in the center of the streets and at curb lines. Sibley street has two 22-ft. roadways and two 16-ft. sidewalks. Jackson street has two 18-ft. roadways and two 10-ft. sidewalks.

The column spacing in Sibley street is 14—26—26—14; in Jackson street 8—22—22—8. The vertical clearance for Sibley street is 13 ft. 6 in.; for Jackson street, 12 ft. 6 in.

The structures for these two subways are similar, consisting of reinforced concrete slabs and girders on spirally reinforced concrete columns. The sidewalls of the Jackson street subway consist of self-supporting mass retaining walls. The west sidewall of the Sibley street subway is a mass wall, while the other is a two-foot reinforced wall, acting as a pier and partition between the street and the under-track rooms. The structures are designed for Cooper's class E 60 loading, with 25 per cent impact with tracks at an assumed spacing of 14 ft. The Sibley street subway is 202 ft. long with skewed portals at each end. The Jackson street subway is 93 ft. long with a skewed portal at the south end.

The Sibley street subway was built in four sections during the third, fourth, fifth and sixth periods of work to comply with the construction program. The Jackson street subway was built in three sections during the third, fourth and sixth periods of work.

Connecting the subways at Sibley and Jackson streets, a distance of 254 ft., and extending 162 ft. beyond Jackson street a subway has been built for Second street to give access to the Omaha freight depot. This has two 20-ft. roadways, with a line of columns between them.



The Waiting Room as Seen from the Concourse

The sidewalls, slab and columns of the Second street subway are built of monolithic reinforced concrete, designed transversely by the slope-deflection method, with unit stresses and loadings the same as in the Sibley street subway. Longitudinally the steel was proportioned according to the rules of the Chicago building code for flat slabs with two-way reinforcing. Piles in the footings were offset from the center of columns and wall so as to produce bending moments equal to and opposite from those in the columns and walls. The structure was built during the third and fourth construction periods.

Another subway under the tracks, leading from Broadway easterly to a teamyard, was constructed during the second period of work. The north side is open through-

out the whole length; the south side consists of a mass wall, supporting the elevated structure. The roadway narrows from 35 ft. wide at the Broadway end to 20 ft. at the east end, where a $3\frac{1}{2}$ per cent ramp leads to the team yard. It is paved with an eight-inch reinforced slab.

All subway structures are waterproofed with four plies of asbestos and one of cotton fabric, protected with $1\frac{1}{4}$ in. of asphalt sand mastic. The roadways in the street subways are paved with second-hand granite blocks on a six-inch concrete base. They are lighted by 200-watt lights spaced about 40 ft. center to center.

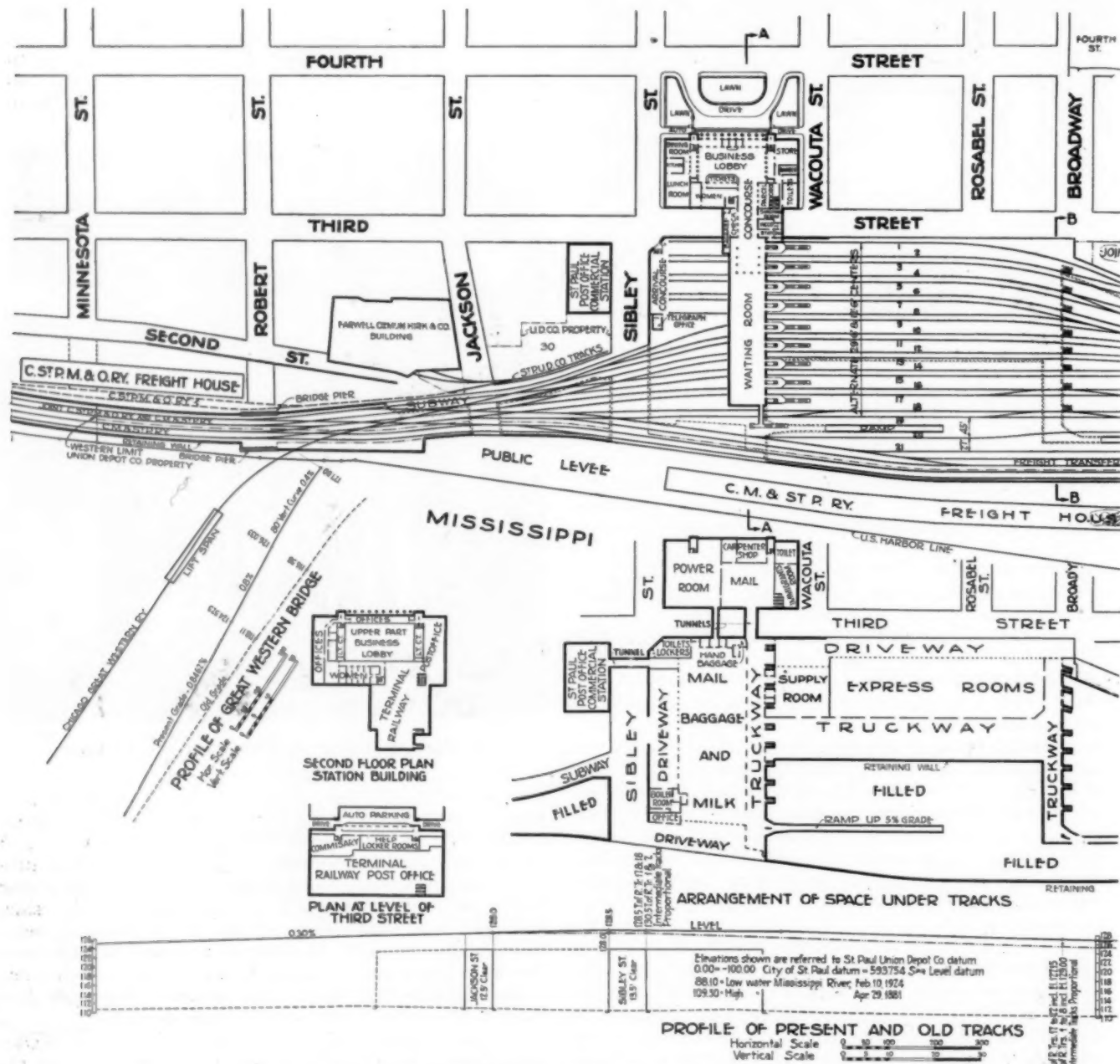
The larger part of the retaining walls in the project are of the mass type, 18 in. wide at the top and with a batter of 4 in. to the foot on the rear side. Footings are five feet six inches thick, with the bottom six feet below the surface. The footings were built of 1:3:6 concrete and the neatwork of 1:2 $\frac{1}{2}$:5 concrete. The walls were poured in alternate sections, 30 ft. long, and to date no cracks have developed due to settlement or temperature, although considerable settlement has developed along the north side of the team yard, due to subsidence.

Use Cellular Retaining Wall

The retaining wall from the return near Jackson street to Minnesota street is built of reinforced concrete cells, in 30-ft. sections, with two back stays in each section. The height varies from 16 to 27 ft. above the ground. This wall is along the river bank, on fill and rip-rap placed many years ago. The type was selected because it introduces the least toe pressure on the footings of all types of retaining walls.

The Track Layout

The track layout is shown in the drawing. There are 21 station-yard passenger tracks and five freight tracks. All tracks connect through the east throat, with the two main connections at this end forming a wye. The through tracks all connect through the west throat to the two main connections, the Chicago Great Western crossing the yard diagonally from one side to the other, to effect a connection with a bridge across the Mississippi river. To provide against possible interference to traffic due to derailments, crossovers, pocket tracks and auxiliary leads are



Track Layout and Floor Plans of the Station

so arranged so as to give several routes from any lead to any track in the yard.

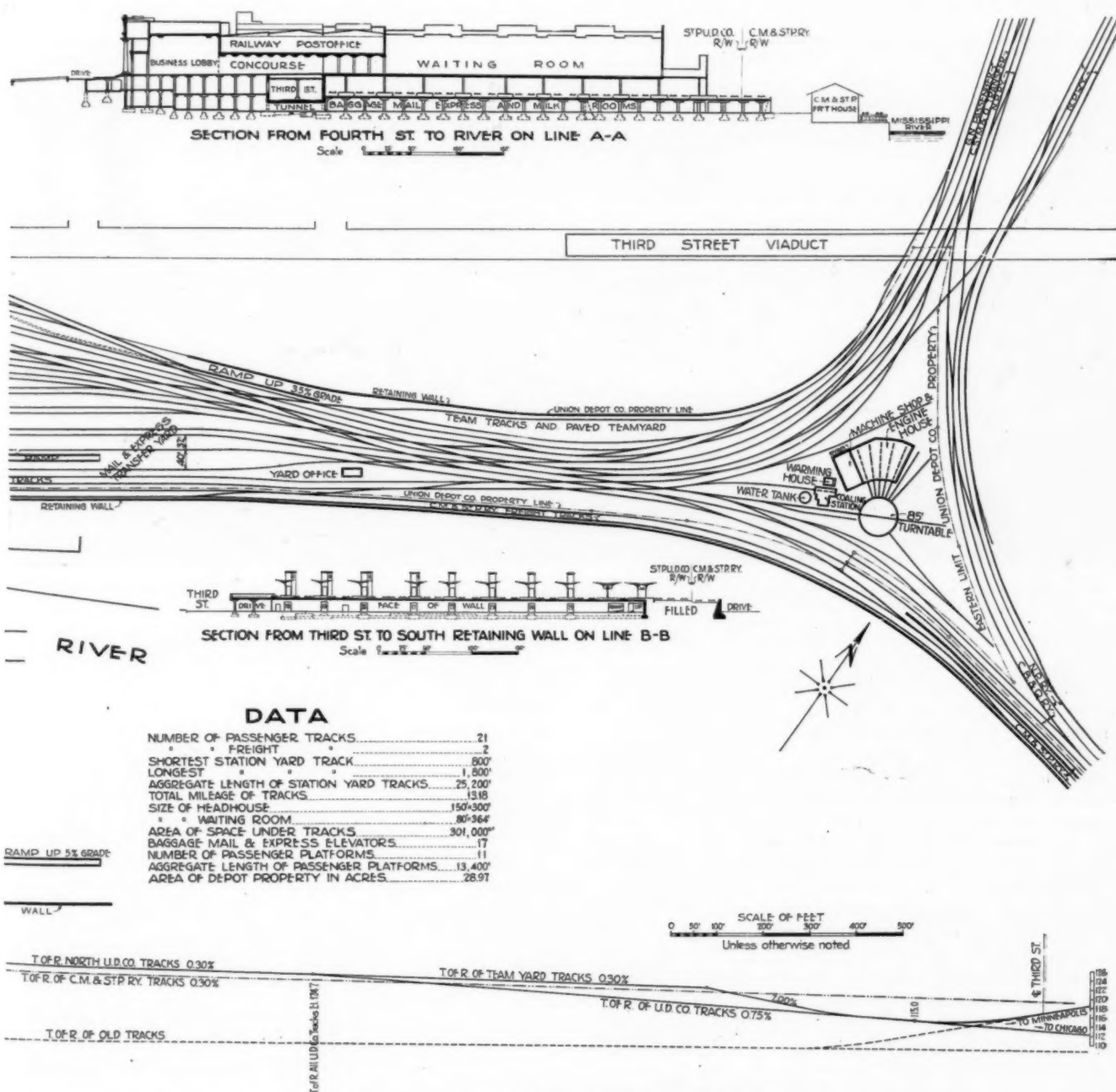
Along the north side of the property, east of Broadway, a paved team yard was provided for delivering direct from baggage and express cars to motor trucks, and for icing fruit and fish express cars. The yard has a capacity of 16, 80-ft. coaches. Tracks 17 to 21, inclusive, are used mainly for the transfer of express and mail and for the advance loading of cars. Track 20 has a platform on each side. These tracks have a capacity of 90, 80-ft. coaches.

All rail used through the new layout is 90-lb. A. R. A. type A open-hearth rail. White oak cross and switch ties were used without treatment. Ballast consists of bank run gravel and cinders, except on the track structure and subways, as considerable settlement will occur and the tracks will have to be re-ballasted several times before becoming stable. On the track structure and subways, washed gravel and crushed limestone ballast was used.

With the exception of a few turnouts on curved tracks at the east end, where No. 14 frogs were used, all frogs

are No. 8 in turnouts and slip switches. There are 83 turnouts, 42 double slip switches and 11 crossings, one with movable frog points. Switches were built according to A. R. E. A. Plans 101, 201 and 203, specification F, except that rail braces were provided with three spike holes. Frogs were built according to A. R. E. A. Plans 303 and 305, with a four-foot center plate. Slip switches were built according to A. R. E. A. Plan 801, with rail-bound manganese frogs, A. R. E. A. Plan 603. Crossing frogs were built of rail-bound manganese, according to A. R. E. A. Plan 765. Switches are non-insulated, as no interlocking plant is to be installed.

During the progress of the work it was necessary to make many temporary track connections and shift the old tracks to permit new construction. During the work of the third, fourth and fifth periods, trains were operated on two levels, connected together at the throats at each end. This made it necessary to raise these throats under traffic, many slip switches being raised 10 ft. or more. During the winter of 1924-25 the Chicago Great Western, having no connection to the high level at the west end and the



low level station yard tracks being abandoned, with the exception of a single freight transfer, found it necessary to make a switch back movement in order to get to the depot. The last low level track was removed in February, 1925, the Great Western detouring over the South St. Paul bridge for $4\frac{1}{2}$ days.

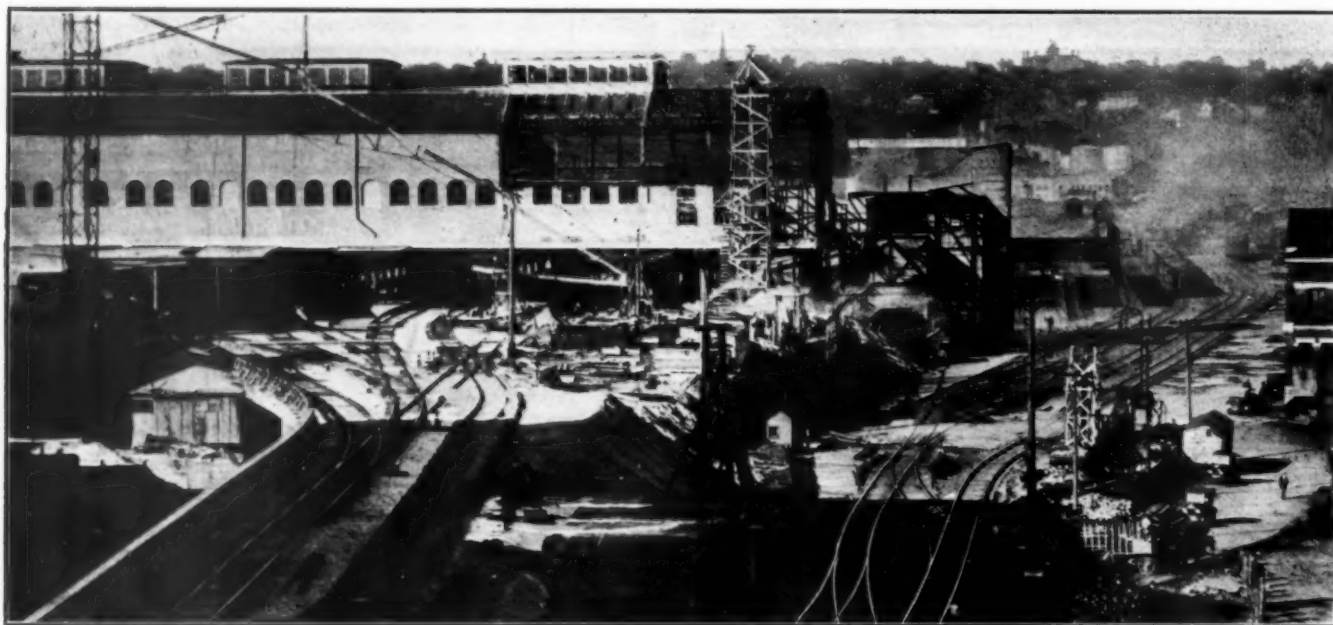
The fourth period fill was practically all made with Western standard gage 20-yd. air dump cars. The contractor furnished 20 of these cars for the work, divided into two trains. Material was obtained from property of the Great Northern Terminal Railway Company, near Mississippi street, about one and one-half miles from the depot. The average carload was 21.4 cu. yd., the best day's work being 140 carloads in 10 hours, in spite of having to haul over very busy tracks and dump in the yard when opportunity offered. During the month of July, 1924, 80,000 cu. yd. of fill was made. A Jordon spreader was used for trimming the dump. A total of 190,300 cu. yd. of fill was placed by this method in 1924.

The same method was used for filling in the sixth period, 65,800 cu. yd. of fill being made in 1925. Additional filling was furnished in gondola cars to enable switches to be laid in the east throat during the summer,

connections have been located about 120 ft. apart. Steam connections for heating cars are located at the west end of the stub tracks, between each pair of tracks at Broadway, and at about 250-ft. intervals east of Broadway between Tracks 16 and 21. Train lighting outlets, with alternating current at 32 and 64 volts, have been located at the west ends of stub tracks, between Tracks 16 and 19 near Sibley street, and between Tracks 16 and 21, 180 and 430 ft. east of Broadway.

A yard office has been built south of the east throat, but north of the freight transfer tracks. It is a wooden-frame structure, sheathed with Celotex, finished with cement stucco and roofed with red Hawthorne cement tile. As it was erected on newly made fill, the ground floor and foundation walls were built in the form of a reinforced concrete raft.

The general plans and most of the details of the project were developed under the direction of W. C. Armstrong, who was chief engineer of the Depot company from January, 1915, until his death in June, 1923, when construction had been carried through the first and second stages. He was succeeded by Col. Frederick Mears, who was chief engineer until May, 1925, and directed the work



A Construction View Showing the New High Level Tracks on the Left and the Last Low Level Tracks on the Right

while the old work, which had been partially raised under traffic the previous year, was replaced by new work. Considerable filling material was obtained from the excavation for the south retaining wall. The total volume of fill made for the entire job was about 480,000 cu. yd.

In order that filling operations could be carried out in the various periods without interfering with traffic on the low level, about 4,000 ft. of timber cribs and 1,000 ft. of dry stone wall were built. Cribs were built out of second-hand ties from the old yard, old timber from wrecked buildings, and new undersized tamarack ties, purchased for 50 cents each. The cribs were from 3 to 18 ft. high.

The Chicago Great Western bridge is a single-track structure with a vertical-lift span, 189 ft. long, over the navigable channel of the river which is near the north or station bank. To provide for the change from the old to the new level of the tracks in the station it was necessary to raise the north end of this bridge about 16 ft., a project which was attended with considerable difficulty on account of the lift span.

Between each pair of tracks in the station yard, water

through the third, fourth and fifth stages. The writer, who had been structural engineer and later principal assistant engineer, has been chief engineer since Col. Mears' resignation. O. L. Hoebel was assistant engineer in direct charge of construction from May, 1917, to June, 1922. W. B. May was assistant engineer in immediate charge of construction from April, 1923, to June, 1925, since when he has been principal assistant engineer. C. P. Bohland was chief inspector from June, 1923, until the completion of the work.

Charles S. Frost of Chicago was the architect for the headhouse and the waiting room, for whom the Toltz Engineering Company of St. Paul (now Toltz, King & Day, Inc.) were consulting engineers, and Neiler, Rich & Co. of Chicago were mechanical and electrical engineers. Neiler, Rich & Co. were also retained with respect to other parts of the project.

Foley Brothers, Inc., was the general contractor for the third and subsequent periods of the work, with D. A. Daly as general superintendent and J. R. Holmes as superintendent on the job.

Union-Management Co-operation

Advocates of this plan on the railways outline its basic principles and tell of its advantages

THE joint meeting of the Taylor Society and the Metropolitan Section of the American Society of Mechanical Engineers in New York on Friday, February 5, at which "Union-Management Co-operation in the Railway Industry" was discussed, marked the first formal presentation of this development under the auspices of a scientific body. Frederick H. Ecker, vice-president of the Metropolitan Life Insurance Company and president of the Chamber of Commerce of New York, presided.

The principles and workings of the plan, as well as its advantages, were discussed in greatest detail by Captain Otto S. Beyer, Jr., the consulting engineer who developed the plan as an advisor to the shop crafts unions. This was followed by an address giving organized labor's appraisal of the plan by Bert M. Jewell, president, Railway Employees Department, American Federation of Labor. The meeting closed with an appraisal from the standpoint of management by Sir Henry Worth Thornton, chairman of the board of directors and president, Canadian National Railways. Several other organizations co-operated with the two above-mentioned societies, including the New York Railroad Club, the Management Division of the American Society of Mechanical Engineers, the New York Chapter of the Society of Industrial Engineers, and the New York Metropolitan Section of the Taylor Society. Abstracts of the more important parts of the addresses follow:

Technique of Union-Management Co-operation

By Otto S. Beyer, Jr.

Union-management co-operation in the railroad industry must meet seven basic requirements. These are:

I. Full and cordial recognition of the standard unions as the properly accredited agents to represent railroad employees with management.

II. Acceptance by management of the standard unions as helpful, necessary and constructive in the conduct of the railroad industry.

III. Development between unions and management of written agreements governing wages, working conditions and the prompt and orderly adjustment of disputes.

IV. Systematic co-operation between unions and management for improved railroad service and elimination of waste.

V. Stabilization of employment.

VI. Measuring, visualizing and sharing fairly the gains of co-operation.

VII. Perfection of definite joint union-management administrative machinery to promote co-operative effort.

Necessity for Union Organization

and Collective Bargaining

The necessity for the first three requirements arises from the fact that before employees can co-operate on a collective basis with management, they must be united in an organization which can give effect to their collective desires and functions. Employees organized under "employees' representation" or "company union" plans have had little or no training in overcoming obstacles and do not enjoy the support of affiliated workers and organizations in other industries. Hence, their organizations lack

the capacity, experience, discipline, leadership and power of initiative to mobilize the collective faculties of their members to co-operate effectively with management. Their unwillingness or inability to organize themselves independently and win recognition for their independent organizations attests to their basic incapacity to build the very foundation upon which co-operative effort must rest. Furthermore, without independent leadership, and without the assurance that their organizations will safeguard for them their share of the gains of co-operation, "company union" employees can have no confidence in the "company union" type of organization. They cannot be sufficiently encouraged and will not feel properly inspired to participate enthusiastically in a program of co-operation.

Collective bargaining has precipitated distinct types of local union organizations with business-like ways for carrying on their activities such as holding meetings, electing officers, raising funds, extending organization and promoting education. A well perfected body of rules, regulations, laws, traditions and policies has been developed to guide the unionized railroad employee in many of his activities. All of this has been a spontaneous and sometimes awkward growth, not always sensitive to or considerate of requirements of polite society. But it has been very real.

Limitations of Collective Bargaining

The ordinary functioning of collective bargaining when regarded from the viewpoint of labor's co-operation with management, reveals certain limitations. Its purpose is almost entirely defensive or protective as far as both railroad employees and management are concerned. It concerns itself only indirectly or negatively with the major purpose of railroad transportation; namely, service to the public. Its machinery only comes into play when employees and management want concessions from one another or when grievances arise. Over long periods of time the machinery of collective bargaining is dormant despite its usefulness in settling disputes. This idleness might well be considered a serious loss. Its elimination provides the best available opportunity for real effective co-operation between railroad employees and management.

This opportunity consists of the widening of the scope of collective bargaining from that of a mutually defensive arrangement between railroad worker and manager to one which is constructive as well. Collective bargaining paves the way for employee and officer jointly to consider and dispose of matters within their respective provinces which affect the welfare of the industry as a whole, as, for example, quality of service, elimination of waste, increased production and stabilization of employment.

Machinery of Co-operation

It is squarely on the organization and interrelation of the shopmen's unions that the machinery of co-operation is based. How this follows becomes clear from a consideration of the detail construction of this machinery. The first form it takes is that of regular joint local meetings between the local federated committee of the organized shopmen and a balanced committee of representatives of the shop management. The latter representatives are composed usually of such local officers as superintendent and assistant superintendent of shops or master machanic, local storekeeper, chiefs in charge of auxiliary depart-

ments and foremen in charge of the major shop departments. The meetings of these committees are held at least every two weeks.

The next important part of the machinery consists of joint system co-operative conferences between the president and secretary of the system federation and the general chairman of each craft meeting with the head of the railroad's maintenance of equipment department and his department chiefs and assistants and representatives of other departments, such as for example the service of supplies or stores department. These conferences on major railroad systems are held regularly every three months. Occasionally in case of emergency, should problems arise involving the welfare of the shopmen or the railroad, experience has demonstrated the wisdom of convening the joint system co-operative conference to consider the situations precipitated by such an emergency.

It is distinctly understood that these co-operative conferences are not for the consideration of grievances. A partial list of subjects which it has been customary to consider at co-operative meetings such as described is as follows:

1. Job analysis and standardization.
2. Improving tools and equipment.
3. Proper storage, care and delivery of material.
4. Economical use of supplies and material.
5. Proper balancing of forces and work in shops.
6. Coordinating and scheduling of work through shops.
7. Training apprentices.
8. Recruiting new employees.
9. Improving quality of work.
10. Conditions of shops and shop grounds, especially in respect to heating, lighting, ventilation and safety.
11. Securing new business for the railroad.
12. Securing new work for the shops.
13. Measuring output.
14. Stabilizing employment.

The regular union channels either functioning in the shop through direct contact between committeemen and the men or through the lodge by means of discussion from the floor are used in getting matters before the joint meetings for consideration. As a result of this procedure it will be noted that there is thrown into the conventional local lodge gathering a new matter of interest and discussion, turning chiefly around the job of the man, the way he works in the shops, his skill, craftsmanship and personal value to his union and the plant, all of which is of most intense interest and significance to the great bulk of organized workers.

Typical Problems Met by

Union-Management Co-operation

The basic object of union-management co-operation is mutual helpfulness. How this attitude manifests itself in dealing with difficulties confronting men and management will perhaps be best illustrated by considering a few typical problems which have been dealt with under union-management co-operation.

I. Improving Conditions of Employment in Respect to Safety, Health, Ventilation, Lighting and Sanitation

Experience has shown that hardly a meeting is held at which at least one or more propositions are not discussed dealing with safety, sanitation, ventilation, or lighting. The interesting thing about it all is that agreement between union and management representatives is effected in the great bulk of cases considered and the necessary remedies or improvements are made with little delay.

II. Conserving Materials, Fuel and Supplies

Railroad employees have everything to gain and nothing to lose by helping conscientiously in the saving of railroad materials and fuel. When their unions and man-

agement are engaged in a co-operative program, they have the assurance that gains in material conservation will help to stabilize employment. It is the function of organized union-management co-operation to educate and interest the employees in material conservation. The machinery of co-operation lends itself remarkably well to this purpose.

It provides a new and effective channel for correlating in the mind of the average railroad worker the importance of saving material and his own personal welfare, especially as affecting the security of his job. If he does not do all he can to save material he is increasing the likelihood for furloughs or short-time employment.

That union railroad workers will readily help to prevent material wastage has been strikingly demonstrated on several railroads where the co-operative program is in effect. An example taken from one shop will suffice. The "material shop expense" which is composed of the costs of small shop tools such as hand hammers, drills, and chisels, and supplies such as machine lubricants, emery, waste, and cutting compound was reduced from a monthly average of \$14.08 per employee to \$7.43.

III. Stabilization of Employment

Some of the specific steps which have been taken to stabilize employment on several railroads will indicate what can be done under the auspices of union-management co-operation to guard against unemployment. Briefly these steps may be listed as follows:

- (a) Systematic and scientific forecasting of revenues and budgeting of expenses.
- (b) Railroad work for railroad shops.
- (c) Clearing house for furloughed employees.
- (d) Flexible hour or mileage pay period.
- (e) Extra boards.
- (f) Special conference between management and system representatives of unions when necessary to curtail expenses to an extent affecting employment.

The necessity for systematic and scientific forecasting of revenues and the budgeting of expenses based thereon is clearly the very first essential of a sound stabilization program. Railroad work in railroad shops in preference to contracting out such work makes available a new source of work, especially if the facilities of the railroad permit of a certain amount of economical manufacturing, which can be done during times when these facilities are not so heavily taxed by routine maintenance work. By maintaining a clearing house and registry system of furloughed employees, making it necessary to ascertain before a vacancy is filled anywhere on the system, whether or not a furloughed employee is available for transfer to fill this vacancy, helps to save many an employee for the railroad. It also helps the furloughed employee. The flexible hour or mileage pay permits of adjustments in hours within reasonable and jointly agreed upon limits in order to tide over declines in income. The provision of extra boards at shop and roundhouse points makes available local standby forces from which to fill temporary vacancies due to absentees or emergency demands for a few additional men. Finally the practice of convening the general chairmen or system representatives of the employees affected when expense reductions are necessary, advising them of the prevailing crisis and its causes, will secure from them their advice and co-operation as to how best to apply the various alternatives possible in order to effect the desired economies.

That progress in employment stabilization has already been achieved by the assistance of union-management co-operation is demonstrated by the fact that the annual wage income per shop employee on the Baltimore & Ohio for the year 1925 has been increased over fifty dollars. In some shops of the Canadian National this income has

been increased by 10 and more per cent during the last year.

IV. Securing Traffic

The standard unions are in a unique position to help railroad managements in securing traffic. Their ability to be of service along this line results from the policy adopted by the regular labor movement to actively promote the sale and use of union made goods. To this end the American Federation of Labor has established the Union Label Trades Department.

In addition to the traffic which comes to a railroad through the activities of the standard unions of its employees functioning through their various affiliations there is another share which comes through the activities of the local organization of its employees directly on the ground. For example, it has been demonstrated over and over again that many individual employees are frequently in a position not only to solicit passengers and freight traffic for their particular railroad, but can frequently, because of special connection or influence, actually direct such traffic to their railroad. Again their local unions affiliated as they are with other local bodies of workers and other organizations, enjoy an influence in their respective communities and with the merchants of these communities which becomes an asset to the railroad in the securing of traffic.

But perhaps more important than either of the two factors just described for stimulating traffic flow to a railroad is the improved service which results from sound co-operation. This in the last analysis is the test of the railroad traveller and shipper.

How the good reputation of a railroad management in dealing and co-operating with its employees and their unions is apt to manifest itself in the traffic secured by the railroad as revealed by its gross revenues is shown by the following figures. The railroad in question is the Baltimore & Ohio whose gross operating revenue is compared with the gross operating revenue of all the other railroads in the Eastern District except the Baltimore & Ohio, and within which most of the Baltimore & Ohio's traffic originates.

Year	Eastern District		Baltimore and Ohio	
	Gross income	Index	Gross income	Index
1921.....	\$2,297,968,028	100	\$198,622,373	100
1922.....	2,457,029,846	103	200,843,170	110
1923.....	2,734,569,662	119	255,594,435	129
1924.....	2,485,085,501	108	224,318,795	113
1925*.....	1,685,586,128*	111*	151,247,890*	116*

*January to August, inclusive.

It will be noted that the Baltimore & Ohio's share of the traffic increases since 1922, the year of the big shopmen's strike, has consistently been greater than the increases enjoyed by its competitors. In 1923, for example, the increase was 10 per cent greater and in 1924 and 1925 (January to August inclusive) it was 5 per cent greater despite certain adverse conditions affecting coal mining along the Baltimore & Ohio. Ever since 1923, the year union-management cooperation was first introduced, the Baltimore & Ohio has increased its gross earnings by \$158 for every \$100 increase of all the other railroads in its territory. (We cannot reconcile this statement with figures given in the table.—Editor)

V. Financial Sharing of the Gains of Co-operating

Increasing wage income through stabilization of employment works in a sort of negative way in satisfying workers with their part of the co-operative program. In the last analysis it is desirable to share the gains of co-operation in a positive way in the form of some increase in their wage income.

But from the management's point of view the problem

of sharing the gains of co-operation in this form is, unfortunately, not so simple. All of the usual complications of wage adjustments come into play, such as the rates of wages paid for similar work by other railroads and in other industries, the cost of living, the financial condition of the particular railroad in question, of the railway industry as a whole, and all industries in general as well as the state of the employment market. In the railroad industry the situation is still further complicated by public regulation of rates. The net result is that hardly any railroad management ever sees fit to step far out in front of all other managements in increasing wage rates.

The first step therefore to enable railroad employees to share fairly in the gains of production is to recognize the productivity or increased output factor in wage negotiations. In other words, wages should in some measure be advanced from time to time as the over-all output of the men per man hour or day increases. Consideration should also be given to improvements in quality of work done and materials saved.

To devise methods for measuring the gains of co-operation not only in the transportation but also in the maintenance and auxiliary departments of a railroad is perhaps the most important immediate problem before railroad managements and the unions where the co-operative program is in effect, or where its establishment is contemplated. Two special joint committees composed of representatives of management and the shopmen's unions are at work on two of these railroads in an endeavor to find a solution for his problem.

Results of Co-operative Meetings

On the Baltimore & Ohio alone, since the beginning of the co-operative movement in the spring of 1923, over 14,000 propositions of one kind or another have been handled by the representatives of the shopmen and the local plant managements at 2180 local union-management co-operative meetings held over the entire system. Of these 14,000 propositions, over 11,300, or more than 81 per cent were approved by these conferences and put into practice. Only 1208 or 8.5 per cent were dropped as not feasible, while 1436 are still under discussion or are being held in abeyance, pending the appropriation of funds necessary to carry them out.

Labor's Appraisal of Union-Management Co-operation

By Bert M. Jewell

President, Railway Employees' Department, A. F. of L.

Permit me to say that in my humble estimation our meeting tonight is still more auspicious coming as it does on the eve of the consummation of a new era in the relationship of employee and managements in the railroad industry. The fact that our unions and the executives of our railroads have found it possible to agree upon a labor policy, to draft a law expressing that policy and to present it to Congress for enactment, is a splendid testimonial to the constructive spirit motivating both union men and managements of our great American railroad industry.

I want to emphasize at the very outset that organized railroad labor is genuinely and deeply concerned about the efficient and economical operation of our railroads, as well as their ability to render the best possible service to the public. Above all else, does organized railroad labor, especially the groups I have the honor to represent, feel that its interests are best safeguarded and furthered by truly efficient and capable railroad management. For bit-

ter experience has taught us only too often that the employees are always called upon first to submit to privations when management falls down on the job, and it is they who suffer most severely.

I should like to make another observation. Organized labor regards railroad management as a trustee. By the very nature of its position and function it should and must so conduct the affairs of our railroads that the three parties concerned with their success, namely the public, labor and investor, will share and share fairly and alike in the receipts of improved railroad service and economy, as meted out to them in the respective coins of their realms. If our railroads in the future are to operate successfully, enjoy public confidence and secure the hearty co-operation of their employees, then railroad management must not discriminate in favor of any group at the expense of the others. A grave responsibility is imposed upon railroad management when it comes to the realization of this ideal. I sincerely believe we can do much through co-operation, however, to achieve it.

Growth of the Movement

As soon as the strike of 1922 was settled, steps were taken to give union-management co-operation a trial. Glenwood shops, a large modern locomotive and car repair plant of the Baltimore & Ohio, located in Pittsburgh, was selected in which to develop this technique of co-operation. Start was made in January, 1923, after the men locally in mass meeting had signified their willingness to assist whole-heartedly in the proposed demonstration. Step by step for approximately a year the details of organization for union-management co-operation were worked out under the general direction of Mr. Beyer, who was retained by us to work with management for this purpose. So successful was this original experiment at Glenwood that an agreement was subsequently entered into between the shopmen's unions and the managements extending the co-operative program to all the shops of the Baltimore & Ohio.

However, before the Glenwood experiment had gone very far, our distinguished guest of the evening, Sir Henry Thornton, President of the Great Canadian National Railway System, had learned of the organized shopmen's interest in and activities along co-operative lines.

Suffice it to say that through his quickness to appreciate the far-reaching possibilities of union-management co-operation, joint steps were agreed upon to introduce co-operation on the Canadian National also. The developments on the Baltimore & Ohio, and the Canadian National have gone forward almost hand in hand. Since the introduction of co-operation on these two railroads, the same policy has been adopted by the organized shopmen and the managements of the Chesapeake & Ohio, and the Chicago & Northwestern.

Among the best evidence I can submit of labor's attitude towards union-management co-operation is the phenomenal growth of the movement among the organized workers, especially those of the railroad industry, since the first demonstration of its possibilities at Glenwood, barely three years ago. The experiment actually began with 300 men in the plant, whose number was gradually increased to 1,000. I believe I am safe in saying that 250,000 union shopmen in the United States and Canada have officially gone on record through action of their respective conventions endorsing and supporting union-management co-operation. Of this number, approximately 50,000 are actually working under the co-operative policy today, with the prospect of others joining them in the not very distant future.

Attitude of A. F. L.

Most of you have learned briefly through newspaper reports last October of the official attitude of the American Federation of Labor on the matter of union-management co-operation. The Executive Council of the Federation in its report to the convention described union-management co-operation and then recommended to the convention that:

"This whole movement be given most serious study and consideration. A number of management experts have recognized that the trade union is essential to the most scientific organization of industry and have contributed to information on this point, as well as promoted discussion and understanding within their profession. Many of these experts are men and women imbued with a desire to render public service in addition to contributing to the development of industry and their profession."

The Council then further recommended that "the Federation keep in touch with such engineers and industrial experts as may be helpful in developing the information and the procedure necessary to union-management co-operation so that there may be reciprocal benefit through exchange of views and information."

What the Men Think

The evidence I have so far submitted to show labor's estimation of co-operation has been chiefly from official labor sources. It should be interesting therefore to learn what the man on the job thinks about it. Three questions to elicit his thoughts were propounded to a representative gathering of shopmen of the Baltimore & Ohio after the program had been in effect a year and a half. Here are the questions and the answers:

"1. Has the installation of the co-operative program restricted union activity? The answer was 'No.' The delegates said the shop committee were functioning as before, but with increased success for the workers, and consequent improvement in the relationship between management and men.

"2. Under the new program are you compelled to work harder—are you more tired when the day's work is done? The answer was another positive 'No,' with the explanation that as a result of the installation of tools for all hands it is less difficult to get the work out on time. Many hurried trips in search of tools are avoided, worry is lessened, and the workers go home feeling better than they formerly did.

"3. How does the amount of time you are now working compare with the amount you worked at similar business periods in former years? The answer was that work has been more steady for a greater number of men since the new program has prevailed than at any similar period in former years."

Another aspect of the value attached to co-operation by organized railroad employees is their appreciation of the remarkable decline in the grievances which tend to arise from day to day. I believe I am safe in my judgment when I state that minor grievance cases on the Baltimore & Ohio, and the Canadian National have been more than cut in two, and appeal cases—those which are not settled locally on the ground where they originate—have been reduced by approximately seventy-five per cent.

Because we are so in earnest about our part in the co-operative program, we have concluded that it is essential for us to put at the disposal of these railroad managements and system federations of shopmen who jointly agree to co-operate systematically with one another, the services of a man who is, we believe, well qualified because of his experience as a mechanic, his training as an engineer, his knowledge of railroad management and appreciation of its problems, and particularly because of his understanding of the labor movement and appreciation of the human problems of industry. We have retained our fellow speaker of the evening, Mr. Beyer, for this purpose.

Workers' Education

Another undertaking of the federated shopmen's unions to better qualify their membership for union-management co-operation lies in the field of workers' education. Together with Brookwood, a resident labor school located at Katonah, N. Y., a summer school course has been organized for training especially shop committeemen, system representatives and union officers in the civics, history and economics of the railroad industry. Based on this fundamental knowledge the courses which are given then lead up to a proper understanding of organized labor's constructive function in the railway industry, the responsibilities and place of management, the technique of co-operation and the nature of many of the problems which confront the industry and its workers. Furthermore, in co-operation with the Workers' Education Bureau of America, we are preparing a series of text books on the railroad industry covering it from every angle, to be used by classes or organized workers. One of these texts will be on co-operative railroading.

Conclusion

The development of co-operation between our railroad labor unions and management is not a simple task. The whole idea of co-operation calls for a new attitude of mind on the part of both the men and the managements. Long established attitudes of the old kind are not easily eradicated. Apathy, prejudice and doubt retard progress. And where these are overcome, impatience is apt to step in and undo what little has already been accomplished.

Union-management co-operation is not a panacea for all our labor ills. It is only a simple step forward. We will experience set-backs and disappointments. We expect them. Impatience with results, skepticism and fear will be long in eradication. Ten years, nay twenty years, will be a short time in which to create a sounder, healthier and lasting attitude on the part of management towards our legitimate unions and of our unions towards management. I firmly believe the cross roads have been reached and passed so that we may now count with confidence on a progressive improvement in the constructive relationship between railroad workers and managers.

Management's Appraisal of Union-Management Co-operation

By Sir Henry Worth Thornton

Chairman of the Board of Directors and President, Canadian National Railways

History of capital and labor abounds with wasteful and deplorable contests. It has been said of war that it is the only game in which both sides lose. The same comment may be made with respect to industrial warfare, for while one of the sides may have won the immediate combat, scars were left which, festering, disturbed the good relationship between employer and employee.

Happily the time has arrived when the employer is prepared to recognize that unions and associations for the protection of the employee exist and cannot be eliminated, and that collective bargaining is just as essential for the welfare of the employee as associations of capital are necessary and useful to the investor; consequently the problem which today confronts us is how can these two essential factors of production be brought to assist one another for their mutual welfare, and of this union-management co-operation in the railway industry is an expression.

The worker, no less than the capitalist, is an investor. The latter invests his money and the former invests his

only resource—his labor. The capitalist endeavors to make investments which are safe and permanent. The same motive actuates the worker; his one and only desire is to secure employment which is continuous and which will bring to him a sufficient reward to enable him to live in comfort and decency and to educate his children as self-respecting members of society. In this laudable ambition he wins the good wishes of all, and this seems to be the common ground upon which labor and capital can meet.

Problem of Wealth Distribution

The world as a whole produces enough to ensure every individual against hunger, want and misery. In a word, the world produces enough to ensure every individual a decent and comfortable living. Unfortunately, our scheme of distribution does not fully accomplish this and, perhaps through no fault of any particular class, there are grave inequalities which demand earnest thought and attention if civilization is to progress. It is along these lines that economists are making their greatest strides. Most of the difficulties which are experienced arise from either nations or individuals reaching for more than that to which they are justly entitled. Civilization has not thus far solved the problem of wealth distribution any more than it has solved the problem of government, for, with respect to the latter, the pendulum has swung all the way from the oppressions of autocracies to the stupidities and inefficiencies of democracies, and we have not yet hit upon that form of government which will preserve freedom to the masses under a popular form of government and likewise create efficiency and honesty in the administration of public affairs. Some day we shall perhaps get it, but there remains a lot of educational and evolutionary work to be accomplished.

The same is true of our scheme of distribution. The present social system replaced worn out feudalism. No doubt the day will come when some other scheme will be substituted for the system which exists today and which involves serious injustices and inequalities. Revolutions, such as those which occurred in the closing years of the eighteenth century in France and lately have taken place in Russia, are social explosions, and when an explosion takes place more damage occurs in the rectification of affairs than is necessary with the result that a good deal of useless harm is caused.

Danger of Revolutionary Explosions

Social and economic pressure continues until it reaches the explosive point, and at this stage the masses revolt, with serious consequences ensuing. The burden which rests upon right-minded and far-seeing individuals is to bring about improvements in the social system which are evolutions as distinguished from revolutions. There is no material psychological difference between the ruthless capitalist and the explosive Bolshevik. It is only the accident of birth which makes either one or the other. It rests with the middle and sane third of society to keep the economic ship on an even keel. Unfortunately this sane middle third is often inactive and generally inarticulate. This is also the class which usually suffers the most from revolutionary explosion.

I think we must accept as axiomatic the statement that the great majority of workers are fair and reasonable. If this is not the case, then we may as well put up our shutters and retire from the field with the knowledge that further advancement is impossible.

The capitalist owes certain obligations to labor, which have been set forth in previous addresses this evening with singular force and lucidity. On the other hand, equally so do the labor masses owe a similar obligation to the employer. Labor unions are here, and they are here

to stay. There is no way in which they can be eliminated. From the point of view of the worker capital is equally tangible and likewise is here to stay, and since, under the conditions which are likely to obtain for a long period of years, neither one can get rid of the other, is it not reasonable to recognize the fact that we are confronted by a condition and not a theory, and work for the mutual welfare of both?

Haunting Fear of Workers

The haunting fear of every laboring man is the loss of his job, often through conditions beyond his control; and if there can be found some scheme which will ensure work to willing hands we shall have gone a long way towards solving the principal problem of the worker and, at the same time, bring tranquil conditions in the industrial field. I can imagine no more progressive and useful step than that which will have for its object this achievement. Imagine, if you can, the peace and happiness which would illumine the whole industrial field if every worker could go to his daily task with the knowledge that his employment is secure, his wife and children ensured from want, and his wages sufficient to bring to him the power to enjoy those essentials and some of the luxuries of life which make it worth living. This perhaps paints a Utopian picture, but it would bring to us that great blessing to which even nations aspire, of peace, happiness and contentment.

Union-management co-operation in the railway industry seeks to achieve as a primary objective continuity of employment, and in the accomplishment of this objective it is destined to play a great and useful part. It has already been applied to shop work and if successful there, as I have no doubt it will be, I can see no reason why it should not be equally applied to other industries.

Clark Opposes Smith Bill

THE Smith bill providing for regional appointments to the commission was characterized as "an unnecessary and an unwise experiment," which would "not add anything to the efficiency or effectiveness of the work in connection with the great problem of regulation of railroads," in a letter addressed by Edgar E. Clark, for many years a member of the commission, to Chairman Watson of the Senate committee. Saying his interest in the matter is that of a citizen "who desires to see the country governed by wholesome law which speaks from the standpoint of the welfare of the country and its people as a whole and which does not unnecessarily or improperly create sectionalism with the attendant rivalries and friction," and that he is also "prompted by the natural interest which one would feel in proposed legislation upon the subject which he has studied with some care, and in connection with which he has had some considerable experience." Mr. Clark said in part:

The Commission is a non-partisan body which is clothed with administrative, quasi-legislative and quasi-judicial powers. The law creating the commission and conferring these powers recognizes no divisions or sections of the country. It assumes regulation by a body selected from the whole people to exercise its powers in the interests of the whole people. No commissioner can properly perform the duties of his office if he permits himself to be influenced in the slightest degree by questions of locality or section.

The bill proposes a plan for selection of commissioners which, so far as I know, has no precedent except in connection with the selection of members of the U. S. Shipping Board. The functions of the commission and of the Shipping Board differ widely. I would not intimate that the regional selection of members of the Shipping Board has been the direct cause of difficulties which

have been encountered by that board in the performance of its duties, but it is certain that that manner of selection has not insured the highest degree of efficiency or of harmony.

The quasi-judicial duties cast upon the commission seem to me to demand that there shall be as much freedom in the selection of members of the commission as there is in selection of justices of the United States Supreme Court and of federal judges. I think it eminently proper that in selecting appointees for membership on the commission, the Executive should give due and proper consideration to a geographical distribution of the appointments, but I do not think that he should be bound by a hard and fast rule recognizing only geographical lines. It might easily be that such a rule would prevent the selection of a man who stood above all others as a desirable selection. It would not reduce the possibilities of unwise or unfortunate selection.

The law contemplates, and wisely, that the commission will be, as it is, one body chosen from all the people and from the whole country and each member a representative of the whole people and the whole country. It can not be hoped that the work of the commission will be improved if the manner of selection of commissioners be changed as proposed and the commission is accordingly eventually composed of six pairs of commissioners, each pair selected from a defined group of states and recognized as "representatives" of their respective groups. We may well inquire whether the tendency under such a plan will be to broaden or to circumscribe the horizon of interest in the transportation problem, which is distinctly national.

The larger systems of railroad are not confined to particular states or groups of states. The people who are served by the railroads of any particular state or group of states have an interest in railroad transportation which extends far beyond the borders of the state or the group.

That basis is stated to be to give the various sections of the United States representation upon the commission "in some degree commensurate with the extent and value of and the public interest in the railroad properties in such sections." It is obvious that a group, no matter how small, would under the proposed plan have representation upon the commission "in some degree" commensurate with the extent and value of and the public interest in the railroad properties in such section. It is, however, difficult to define the extent or the limits of "some degree."

Who knows what the term "public interest" in the railroads as used in this bill means? How is it to be appraised? How is it to be measured for purposes of distribution among the groups proposed or among any other groups? The value of the railroad properties must have some fairly close relation to the mileage of the properties. The public interest, if it be divided up in sections, must have some relation to the number of people who make up the public in the several groups. I have, therefore, consulted official figures to see how the proposed distribution among the several groups would work out, with the following results.

The proposed New England group, composed of the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island, would have a population of 7,400,909 and a railroad mileage of 7,847 miles.

The Middle Atlantic States group consisting of the States of New York, Pennsylvania, New Jersey, Delaware, Maryland, Ohio, and the District of Columbia, would have a population of 30,130,823 and a railroad mileage of 32,807 miles.

The Lake group, consisting of the states of Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska, would have a population of 28,260,398 and a railroad mileage of 87,193 miles.

The South Atlantic group, consisting of the states of North Carolina, South Carolina, Georgia, Florida, Virginia, West Virginia, and Kentucky, would have a population of 14,296,667 and a railroad mileage of 34,101 miles.

The Gulf Group, consisting of the states of Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, Texas, Tennessee, and New Mexico, would have a population of 17,079,251 and a railroad mileage of 49,279 miles.

The Mountain group, consisting of the States of Montana, Wyoming, Colorado, Idaho, Washington, Oregon, Nevada, California, Arizona, and Utah would have a population of 8,542,622 and a railroad mileage of 38,969 miles.

The unequal representation that would be produced by this measure is obvious from the above figures, whether we consider it from the standpoint of population or of railroad mileage, or a combination of both.

I have not undertaken to work up the figures showing the miles of track in the several groups but it is a matter of common knowledge to all who are at all informed on the subject as to where the preponderant portion of second, third and other multiple main-line tracks exists.

I trust that approval will not be given to this or any similar proposal. The commission should be composed of men who are competent, capable, industrious and of judicial temperament and when a vacancy occurs the best man available should be selected whether he happens to come from Dan or from Beersheba.



Mountain Type Locomotive Built for the Texas & Pacific by the American Locomotive Company

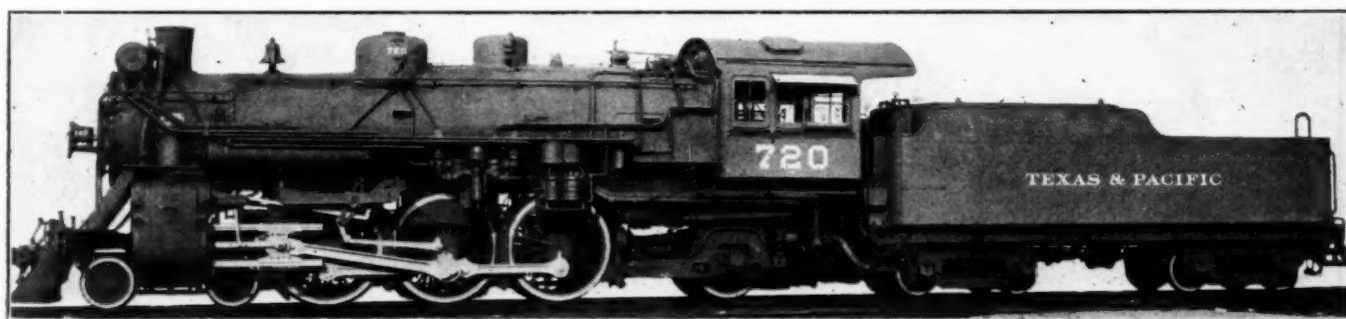
4-8-2 Type Locomotives for the Texas & Pacific

Rugged design to secure low maintenance—Develops tractive force of 63,700 lb. with booster

THE American Locomotive Company has recently delivered five 4-8-2 type locomotives to the Texas & Pacific for use in heavy main line passenger service. These locomotives were purchased to replace in this service a number of 4-6-2 type locomotives procured from the same company in March, 1923. As shown in the table, the 4-6-2 type locomotives develop a rated tractive force, with the booster, of 49,800 lb., as compared to 63,700 lb. for the 4-8-2 type, and are equipped with practically the same accessories designed to give increased capacity, as the latter, except syphons. Both types of locomotives have 73-in. diameter drivers and are equipped

with a boiler having ample proportions, a firebox of ample heating surface and volume, together with a feedwater heater and superheater.

The locomotives are of rugged design, the various accessories being located to provide a large degree of accessibility with the object of procuring low maintenance. They are equipped with cast steel cylinders, which affects a reduction in weight of about 2,500 lb. Referring to the elevation drawing, and the photograph of the Texas & Pacific 4-8-2 type locomotive, the reader will note that the designers have utilized the location of the cross-compound air compressors under the Elesco feedwater heater



Pacific Type Locomotives Which Formerly Handled the Service for Which the New Mountain Type Locomotives Were Designed

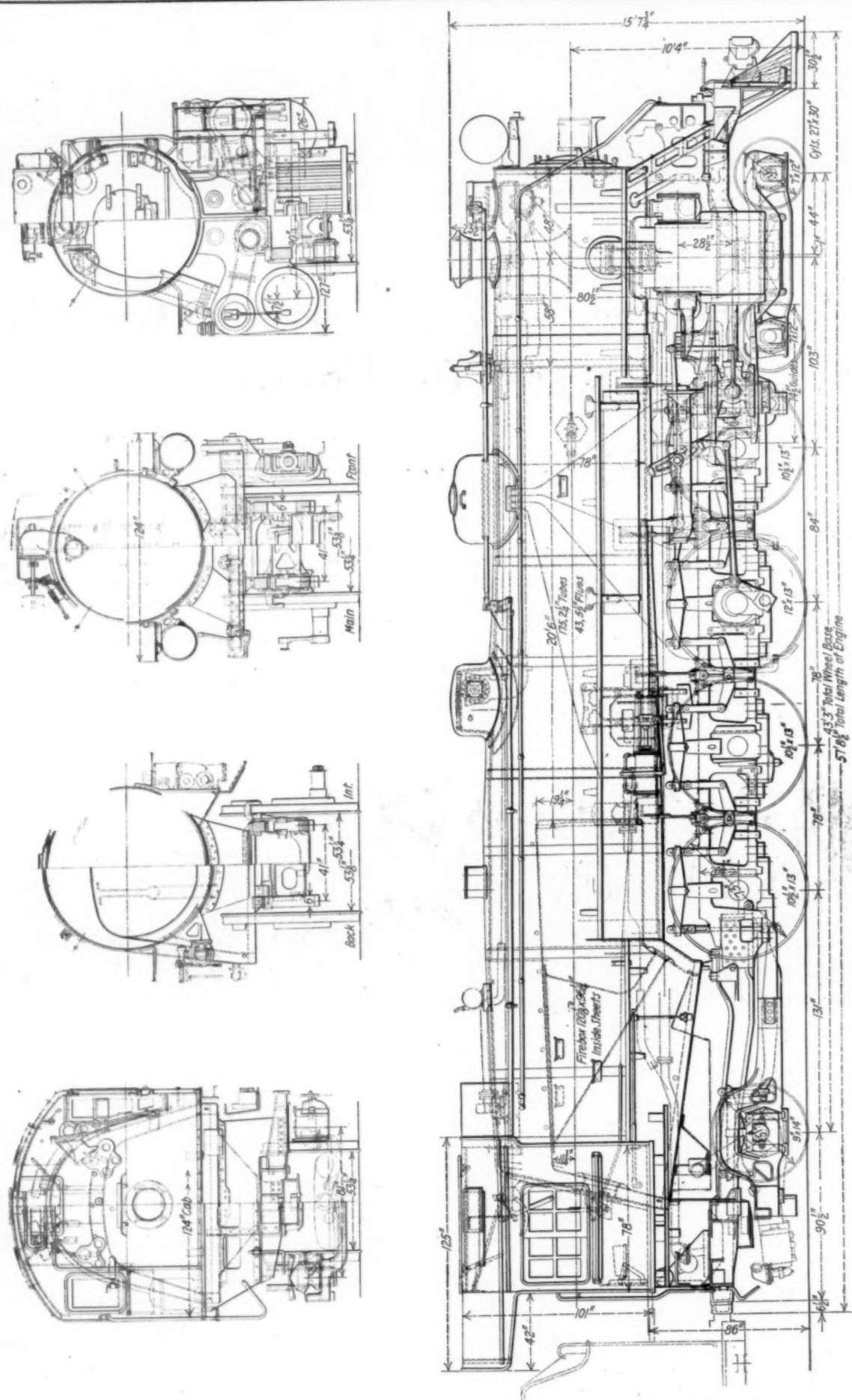
to burn oil. The total weight of the 4-8-2 type locomotives is 360,500 lb., of which 245,500 lb. is carried on the drivers, 54,500 lb. on the trailing truck and 60,500 lb. on the engine truck. A comparison of these weights with those of the 4-6-2 type, as well as other important dimensions, weights and proportions, is given in the table.

In many respects the problems presented to the designers in the construction of the 4-8-2 type locomotives for the Texas & Pacific were the same as those contained in the design of the locomotives of the same wheel arrangement for the New York Central, which were described in the January 30, 1926, issue of the *Railway Age*. The requirements of the traffic for which these locomotives were purchased by the Texas & Pacific also took a locomotive that would maintain sustained tractive force at speeds. The required maximum sustained horsepower

at the front of the smoke box to obtain a satisfactory distribution of the weight of the engine over the wheel base.

The cylinders are 27 in. in diameter by 30 in. stroke. They are fitted with Hunt-Spiller gun iron bushings. The exhaust steam is carried from extension valve chamber heads through cast pipes which are bolted to openings on the front and back faces of the saddle casting, from whence the exhaust steam is carried inward and upward through cored passages to the exhaust nozzle base at the top of the saddle. The valves are of the piston type, 14 in. in diameter and have a maximum travel of $7\frac{1}{2}$ in. They are actuated by a Walschaert valve gear. These locomotives are equipped with a single exhaust pipe having a $6\frac{3}{8}$ -in. nozzle.

The four pairs of drivers are driven by articulated main rods, driving on the second and third crank pins.



Elevation and Cross Section Drawings of the Texas & Pacific 4-8-2 Type Locomotive

Side rods distribute the load from the second pair forward to the first, and to the rear from the third to the fourth. The forward driving axle is fitted with Franklin lateral motion driving boxes designed to provide a total lateral movement of $1\frac{1}{2}$ in.

The boiler is equipped with two Nicolson thermic syphons, which provide an additional evaporating surface of 70 sq. ft., and with a type A superheater. The total evaporating surface of the boiler is 3,768 sq. ft. which, including the total superheating surface of 1,110 sq. ft., makes a total combined evaporative and superheating

conversion to lignite burning service which accounts for its relatively large grate area.

This locomotive is equipped with a 12-wheel tender, having a Commonwealth cast steel frame and six-wheel trucks, equipped with clasp brakes. The tank is of the water-leg type having a capacity of 12,000 gal. of water and 5,000 gal. of fuel oil.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 30 amounted to 925,263 cars, an increase of 27,895 cars over that for the corresponding week of last year, after two weeks in which this year's loading was less than that of last year. The total for the week, however, was 4,360 cars below that for 1924. Increases over last year were shown in all districts except the Northwestern and Central Western, and in coke, ore, merchandise and miscellaneous freight, while decreases were shown in grain and grain products, livestock, coal and forest products. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED JANUARY 30, 1926

Districts	1926	1925	1924
Eastern	209,485	201,427	228,535
Allegheny	181,579	177,520	187,247
Poconong	56,014	48,082	40,698
Southern	152,206	140,872	144,076
Northwestern	113,856	118,317	123,590
Central Western	144,740	145,429	143,056
Southwestern	67,383	65,721	62,421
Total Western districts	325,979	329,467	329,067
Total all roads	925,263	897,368	929,623
Commodities			
Grain and grain products	45,192	47,880	53,611
Live stock	31,228	34,032	33,242
Coal	183,071	193,300	198,890
Coke	18,192	13,310	12,572
Forest products	72,634	75,587	80,808
Ore	9,747	8,885	9,506
Mdse. L. C. L.	248,837	232,326	236,162
Miscellaneous	316,362	292,048	304,832
January 30	925,263	897,368	929,623
January 23	921,734	924,291	891,481
January 16	936,655	934,022	894,851
January 9	907,119	934,170	872,023
January 2	741,239	767,098	706,292
Cumulative total, five weeks	4,432,010	4,456,949	4,294,270

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended January 30 totalled 53,361 cars, or 830 cars less than the previous week but 1,703 cars heavier than in the same week last year. In the Western division grain fell off 782 cars.

Commodities	Total for Canada			Cumulative totals to date	
	Jan. 30, 1926	Jan. 23, 1926	Jan. 31, 1925	1926	1925
Grain and grain products	6,387	7,651	6,850	34,174	26,021
Live stock	1,731	2,252	2,207	8,603	10,122
Coal	5,293	5,024	5,535	22,409	23,622
Coke	471	383	283	1,758	1,249
Lumber	3,123	3,074	2,880	11,356	10,762
Pulp wood	4,276	3,985	4,590	15,374	16,153
Pulp and paper	2,686	2,629	1,990	10,588	8,109
Other forest products	3,919	3,244	3,553	13,012	11,943
Ore	1,348	1,448	1,100	5,590	4,639
Merchandise, L. C. L.	13,956	14,307	13,266	55,987	53,257
Miscellaneous	10,171	10,194	9,404	40,053	38,474
Total cars loaded	53,361	54,191	51,658	218,904	204,351
Total cars received from connections	35,036	36,160	39,610	134,309	137,595

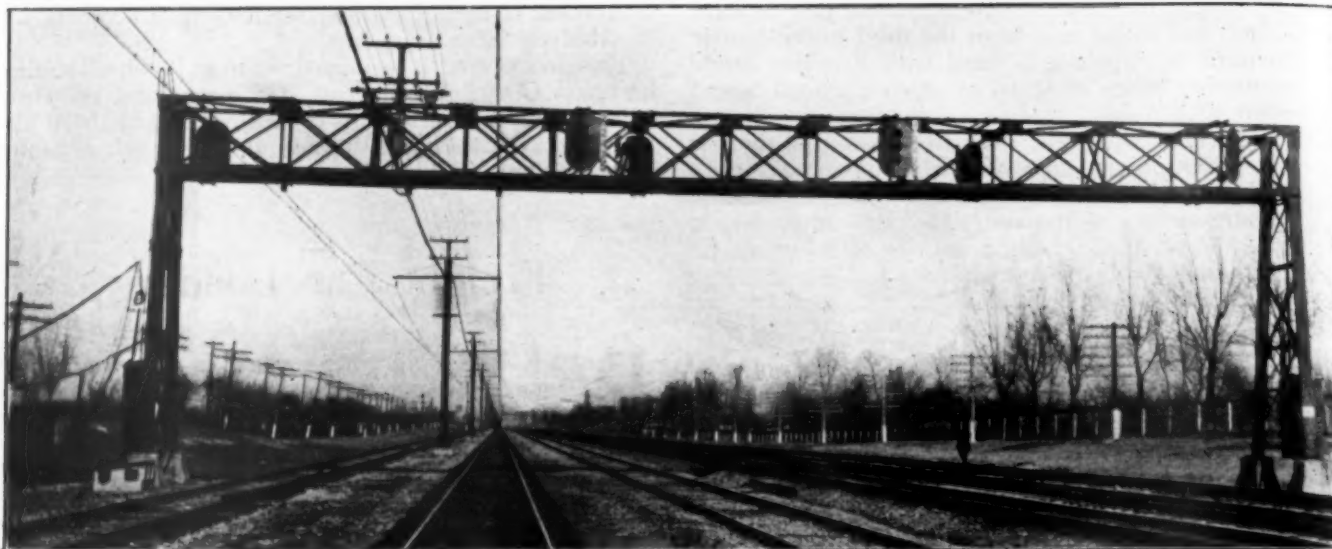
NEWSPAPER REPORTS that the Southern Pacific of Mexico is to be merged with the National Railways of Mexico have been denied by President William Sproule of the Southern Pacific, who said that the report probably originated in the fact that the Southern Pacific of Mexico is completing arrangements to use the line of the National Railways from Guadalajara into Mexico City.

COMPARATIVE TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS OF TEXAS & PACIFIC 4-8-2 TYPE AND 4-6-2 TYPE LOCOMOTIVES

Type of locomotive	4-8-2	4-6-2
Railroad	Texas & Pacific	Texas & Pacific
Builder	American Loco. Co.	American Loco. Co.
Service	Passenger	Passenger
Cylinders, diameter and stroke	27 in. by 30 in.	26 in. by 28 in.
Valve gear, type	Walschaert	Walschaert
Valves, piston type, size	4 in.	14 in.
Weights in working order:		
On drivers	245,500 lb.	187,000 lb.
On front truck	60,500 lb.	51,000 lb.
On trailing truck	54,500 lb.	57,000 lb.
Total engine	360,500 lb.	295,000 lb.
Tender	259,000 lb.	178,000 lb.
Wheel bases:		
Driving	20 ft.	13 ft.
Total engine	43 ft. 3 in.	34 ft. 8 in.
Total engine and tender	84 ft.	71 ft. 4½ in.
Wheels, diameter outside tires:		
Driving	73 in.	73 in.
Front truck	36 in.	33 in.
Trailing truck	51 in.	51 in.
Boiler:		
Type	Conical	Conical
Steam pressure	210 lb.	185 lb.
Fuel	Oil	Oil
Diameter, first ring, inside	78 in.	73 in.
Firebox, length and width	120½ in. by 96¼ in.	114½ in. by 75¼ in.
Combustion chamber length	72½ in.	34—5½ in.
Flues, number and diameter	43—5½ in.	242—2 in.
Tubes, number and diameter	175—2¼ in.	20 ft. 6 in.
Length over tube sheets	20 ft. 6 in.	20 ft. 6 in.
Grate area	80.3 sq. ft.	59.8 sq. ft.
Heating surfaces:		
Firebox and comb. chamber	334 sq. ft.	209 sq. ft.
Tubes	2,102 sq. ft.	2,586 sq. ft.
Flues	1,262 sq. ft.	976 sq. ft.
Syphons	70 sq. ft.	
Total evaporative	3,768 sq. ft.	3,771 sq. ft.
Superheating	1,110 sq. ft.	834 sq. ft.
Comb. evaporative and superheating	4,878 sq. ft.	4,605 sq. ft.
Special equipment:		
Superheater	Type A	Type A
Feedwater heater	Elesco	Elesco
Syphons	Nicolson	
Booster	Franklin	Franklin
Tender:		
Style	Water leg	Water leg
Water capacity	12,000 gals.	9,000 gals.
Fuel capacity	5,000 gals.	3,200 gals.
General data estimated:		
Rated tractive force, 85 per cent	53,500 lb.	40,800 lb.
Rated tractive force, with booster	63,700 lb.	49,800 lb.
Weight proportions:		
Weight on drivers ÷ total weight engine, per cent	68.2	63.4
Weight on drivers ÷ tractive force	4.6	4.58
Boiler proportions:		
Tractive force ÷ comb. heat. surface	14.2	11.01
Tractive force X dia. drivers ÷ comb. heat. surface	1035	804

surface of 4,878 sq. ft. The inside diameter of the first ring of the boiler is 78 in. The Chambers front end throttle is located between the superheater header and the branch pipes ahead of the smoke stack. Superheated steam is used for the whistle which is located well forward on the boiler alongside of the bell. This location of the whistle, together with the use of superheated steam, protects the occupants of the cab from the unpleasantness of having the whistle at close range, increases the effect of the whistle as a warning, and increases the volume and sharpness of the tone.

The firebox is $120\frac{1}{2}$ in. by $96\frac{1}{4}$ in. and has a grate area of 80.3 sq. ft. It is fitted for oil-burning service. The locomotive is designed, however, for possible later



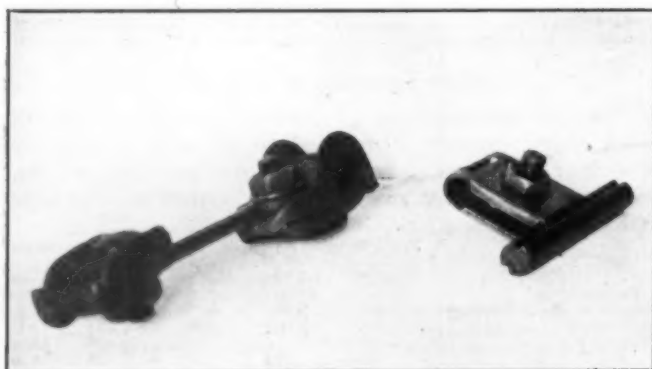
Existing Signal Bridges Have Been Used as Catenary Supports, Between Homewood, Ill., and Richton

Illinois Central Electrification Progress

Construction of overhead distribution system is now well under way

THE overhead distribution system for part of the territory included in the electrification program of the Illinois Central is already completed and the remainder of the work is being pushed rapidly. That portion of the main line program between 115th street and Richton, Ill., consisting of two main tracks, is nearly all completed, and in addition a substantial percentage of the catenary system on the Blue Island and South Chicago

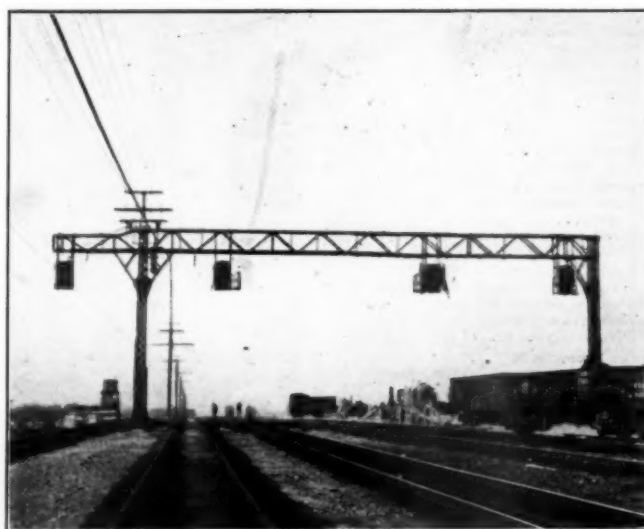
carrying capacity. The catenary system over each main track comprises a composite copper and copper-clad steel main messenger of high tensile strength, a hard-drawn copper auxiliary messenger and two cadmium bronze or copper grooved contact wires. The latter are normally



Catenary Hanger and Contact Wire Supporting Clamp. These Fittings Are Made of Bronze Except for the Hanger Rod Which Is Hard Drawn Copper

branches is finished. Traction power supply, as reported previously in these columns, will be at 1,500 volts d.c. from seven substations adjacent to the right-of-way, which are, in turn, fed directly from generating stations of the Commonwealth Edison Company or the Public Service Company of Northern Illinois, through whom the Edison Company is supplying power outside of the city limits of Chicago.

Without additional feeders the catenary system is so designed that it will in itself provide the necessary current



Where Signals Are Required, Combined Catenary and Signal Bridges Are Being Installed, Except Between Homewood, Ill., and Richton, Where Existing Signal Bridges Have Been Utilized

22 ft. above the top of the rail south of 43rd street and will be 18½ ft. above the top of the rail north of 43rd street. In the heavy traffic section north of 67th street, No. 3/0 A.W.G. bronze contact wires will be used to obtain the best wearing qualities, while on the remainder of the main line and on the South Chicago and Blue

Island branches No. 4/0 copper contact wires are being used. Throughout the life of the contact wires the average conductivity over each track will be approximately equivalent to 790,000 circular mils of copper. Non-ferrous hangers and fittings are used exclusively. These hangers are all furnished on the job, cut exactly to the correct length.

Construction Progresses Rapidly

With Work Train Equipment

Work trains of several cars each are being used for the stringing of all overhead wires and for clipping-in and steady-bracing all of the overhead system. Special

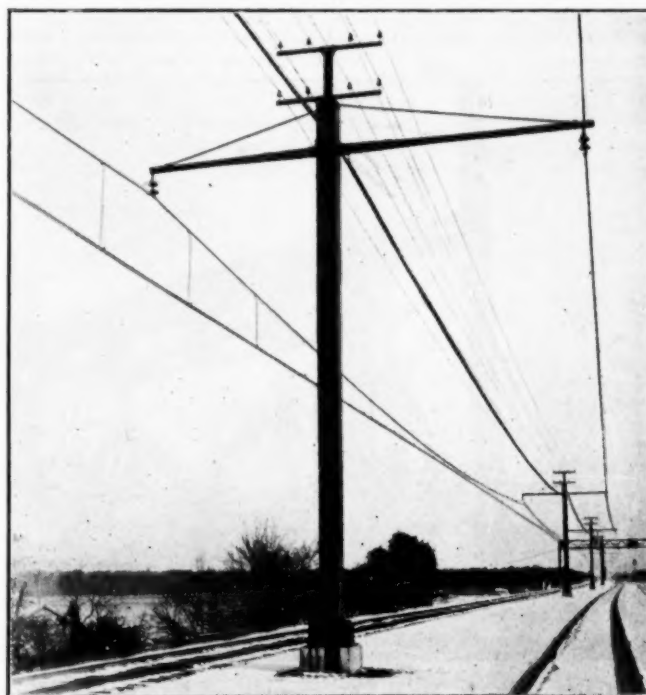


Outline Map of the District Included in the Illinois Central Chicago Terminal Improvement

platforms adjustable, as to elevation have been built on flat cars to accommodate the necessary number of men to carry out most economically the clipping-in process. A reel car, tool car and required number of supply cars make up the remainder of the work train used by the contractor. The main messenger is the first wire to be strung over a section of track from the work train. In doing this the greatest part of the slack is taken up by the train itself, but the final tension for each reel length is obtained from a hand winch operated by two men on the train. They are able to read the tension directly from a spring scale, which, with the assistance of a very carefully prepared temperature tension chart, enables them to secure the proper tension accurately. To facilitate the

operation of pulling the messenger and contact wires, pulleys are temporarily suspended from the insulators. One reel of cable is pulled up and anchored temporarily before any splice is made in messengers. On straight track this arrangement enables the stringing of about two to four miles of main messenger in a day with a gang of eight linemen.

The next step in work train operation is the suspension of the hangers from the messenger. This is facilitated greatly by the tagging of hangers for each individual span. Following this operation the auxiliary messenger and double contact wires are strung together because it is just as easy to pull up three wires at a time as it is to handle them one at a time. Proper tension in the auxiliary messenger and contact wires is secured prior to clipping-in the hangers and fittings. Each wire of the double contact wire system is alternately clipped to the auxiliary messenger, making an extremely flexible overhead contact system, capable of making good contact with motor car pantographs with no visible sparking. String-



Type of Single Column With Double Brackets Used in Double Track Territory South of Kensington (115th Street) Catenary Span Has Been Completed on Southbound Track, While That Over Northbound Track Is Not Yet Clipped In

ing of auxiliary messenger and contact wires is made at about the same rate as the erection of the main messenger, averaging about two to four miles a day. After the clipping-in work is finished on a section of catenary the next step is the tying-in of the wires with the steady-bracing to effect correct alignment.

Catenary Structures Also Carry

A. C. Distribution System

To feed the miscellaneous lighting and power load on the railroad right-of-way, 3-phase, 4-wire, 4,000/2,300 distribution lines are being installed on the catenary structures. There will be duplicate lines of this type north of 69th street, but initially a single line only is being installed in the territory south of 69th street to the end of the electrified zone at Richton. Plans provide a future additional distribution line between 69th street and Harvey, the proposed point of steam-electric change-over

for through passenger and freight electrification. In addition to the 3-phase lines there are duplicate single-phase, 2,300-volt signal power lines installed on the same catenary structures. These lines will be sectionalized at each substation and connected to the power company's 12,000-volt, 3-phase system through transformers.

Distribution transformers are installed in duplicate at signal locations, such that in the event of a power failure on the line used normally the signal load will be transferred automatically to the auxiliary line to insure continuity of signal service and non-interruption to traffic. All signal distribution lines will be served from the seven traction substations erected by the power company adjacent to the right-of-way, and in addition from sources of a.c. power at three other points. For a large part of the mileage the signal control cables are also carried on the catenary supports. On the South Chicago and Blue Island branches the overhead system will also carry the telephone cables.

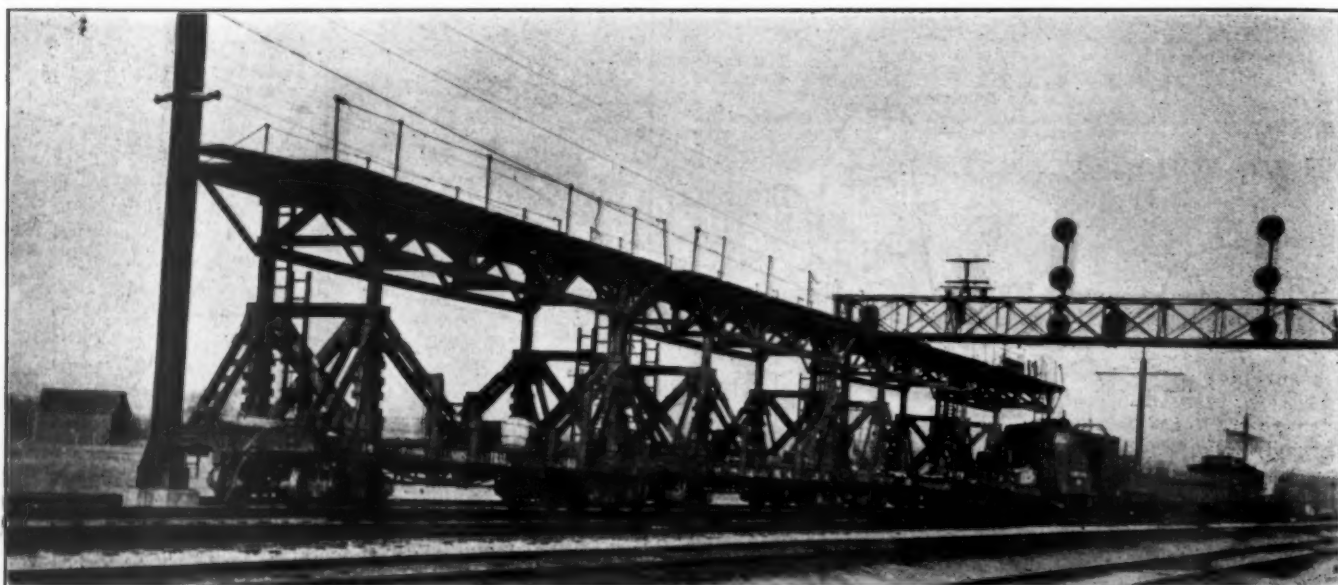
For the entire project a total of 1,200 concrete foundations will be required for the steel overhead structures, each containing about $7\frac{1}{2}$ cubic yards of concrete. These

Change in Signaling System

The electrification of the suburban zone makes necessary the replacement of the d.c. automatic signals with a 60-cycle alternating current system. Principally it amounts to a change in track circuits, for the color-light signals which are now in use will continue to remain in service.

Between Homewood and Richton the signals are mounted on existing signal bridges, and on the South Chicago line are attached to the catenary columns, but on the main line north of Homewood they are suspended from combined signal and catenary structures.

Studies were made of car, engine, roadway and signal equipment and of train operating characteristics in order that the signals might be located to provide maximum carrying capacity. As an indication of the thoroughness with which this work was undertaken it should be stated that these elements included profile and alignment of the right-of-way, station locations, accelerating and braking rates, and the normal and maximum attainable speeds on various grades for all types of equipment to be operated as well as the visibility of the signals, the time



Contractor's Work Train Equipment Used for Overhead Construction—The Auxiliary Messenger and Double Contact Wires Are Being Strung Together

foundations are already installed on the main line, from 23rd street south as well as on the South Chicago and Blue Island lines.

Overhead steel supports for the catenary system are spaced approximately 300 ft. apart. Single columns with double brackets extending out over the tracks are being used south of 115th street, provision being made for the addition of trusses and columns for the future electrification of freight and through passenger service to the proposed locomotive change-over at Harvey.

At locations south of 115th street (Kensington) where signals are required, combined catenary and signal bridges with built-up columns and trusses are being installed.

North of Kensington, structures of built-up columns and trusses are being installed which will ultimately span the entire right-of-way, 200 ft. in width. With the exception of a few locations where work has been delayed because of track rearrangement, practically all catenary structures for the initial electrification were completed south of 31st street at the beginning of this year.

required to change from one aspect to another, the comprehensiveness and comparative simplicity of the scheme of aspects displayed by the signals and the indications they convey.

PUBLIC RELATIONS COMMITTEES IN EVERY COUNTY was one of the ideals set up for itself by the Baltimore & Ohio management a couple of years ago; and at last accounts such committees had actually been organized in 158 counties. These committees, meeting whenever practicable with such gatherings of citizens as could be arranged, have produced satisfactory results in many directions. During the past few months these committees have combined their operations, in certain districts, holding what are called divisional meetings; meetings participated in by all of the county committees on a division. Such a meeting was held at Washington, Ind., in December, with an attendance of nearly 100, including the railroad representatives, business men, lawyers, doctors and others; another at Dayton, Ohio, had an attendance of 53 and one at Chillicothe, Ohio, with an attendance of 73. At Willard, Ohio, on Friday, next, there will be a meeting representing three divisions, the Akron, the Newark and the Chicago divisions.

Proposed Consolidation Law Changes

Commissioner Hall urges simple legislation to give roads a chance

COMMISSIONER HENRY C. HALL of the Interstate Commerce Commission continued his testimony before the Senate committee on interstate commerce on February 6 on the Cummins bill to amend the consolidation provisions of the transportation act, contending that the railroads need neither compulsion nor incentive to make important progress toward combining into larger systems. The railways are waiting for a chance to go ahead, he said, but are held back by the provisions of the present law, which Senator Cummins proposes to amend, but he criticized numerous provisions of the bill and particularly the proposed use of recapture as an incentive to consolidation, saying he deprecated "any hot-house growth, any forcing process." He also suggested that if any definite period is to be allowed for voluntary consolidations before the commission is required to promulgate a complete plan, it be made five years instead of three, but he suggested that the objects sought could be accomplished by very simple legislation, such as was proposed by the commission in 1919.

Mr. Hall found so many points on which to suggest changes in the Cummins bill, especially in the provisions relating to procedure and administration, that the senator indicated considerable resentment, and said he would try to show later that the author of the bill was "not so unintelligent or so ignorant" as he had been made to seem to be. Hearings on the bill are to be resumed on February 16, when testimony presenting the views of the railways will be given by Alfred P. Thom, general counsel of the Association of Railway Executives, to be followed by A. H. Harris, vice-president of the New York Central. An abstract of Mr. Hall's statement, omitting many of his detail references, follows:

Commissioner Hall's Comments on S. 1870

At previous hearings on this bill the chairman of the commission has laid before you a substitute bill offered by a majority of the commission and has voiced the views of that majority supporting the substitute. Your attention has been invited, also, to features of the existing statute, providing for consolidation in one form, in compliance with one plan, embracing the railway properties of the continental United States, adoption and promulgation of which is made a prerequisite to action by the carriers or by us to effect consolidation under the statute; and to the one loophole left in paragraph (2) of section 5 providing for acquisition of control of carriers by other carriers under lease, by purchase of stock or in other manner "not involving the consolidation of such carriers into a single system for ownership and operation." Such acquisition of control, to the extent indicated by the commission, may now be authorized by it upon application and after hearing, if deemed by it to be in the public interest . . . but progress in the consolidation contemplated by other paragraphs of section 5 has been arrested pending promulgation of the "complete" plan, as it is characterized in paragraph (6) (a).

Your attention has been invited to the important improvements in the existing statutory provisions for consolidation which constitute the great merit of the bill now before you, and, as the foundation for that bill is laid in the new paragraph (4), containing, as its author says, the heart of the bill, this paragraph has been discussed at some length, but without attempt as yet to offer a substitute wording.

It will be appreciated that every word of this bill, if it should be enacted, may have to be weighed, and every phrase or sentence analyzed and looked at from many angles, by those who may seek to avail themselves of the act, or must apply and enforce its provisions. Its importance fully warrants the most careful scrutiny at this formative stage, before it becomes law, in order that it may contain the essential, eschew the non-essential,

and lay out a safe path, plainly marked, along which carriers may proceed toward the end desired by all of us of furnishing to the people of the United States an adequate transportation service in the fullest measure humanly possible.

Paragraphs (5) to (18), read together, provide for consolidation of carriers, unification of carrier properties, or unification of control, in any one or more of the various forms indicated, prior to the promulgation of any plan, upon compliance with the provisions here set forth, and approval by the commission subject to such terms, conditions and methods as it may prescribe. They thus collectively constitute a vast improvement upon the existing law and one of the great virtues of this bill. . . .

The next three paragraphs deal with the deferred plan of consolidation.

Paragraph (19) names a period of three years after enactment of this bill. For reasons previously indicated five years would seem preferable. At the close of either period applications would probably be pending, perhaps many of them, but the commission is directed to take account only of the extent to which systems shall have been "completely provided for" in its orders. The carriers whose applications were then pending might well be taken into account also. Express provision should be made that the plan can be adopted and promulgated in chapters or instalments, each covering systems which interlace, and that terminal situations may be dealt with in succeeding chapters, if that proves desirable.

The provision for modification of the plan after adoption is important. The prohibition against disruption seems to put systems which may grow up under this act on a different footing from systems which now exist. They should be treated alike. It is not clear how boards of directors and holders of voting securities can grant consent to such a feature of the plan before its adoption.

In paragraph (20) the principles should be restated in conformity with such restatement as may be made in paragraph (4), previously discussed.

Paragraph (21), read in connection with the two preceding paragraphs, is a great improvement upon the existing statute. It may well be that various carriers, terminal or other, can better serve the public independently than as components of a system.

By paragraph (22), as I read it, carriers may not consolidate under state laws after enactment of this bill, thus effecting one of the ends sought by the commission's bill, as expounded by its chairman. Others place a different interpretation upon this paragraph. Its meaning and effect should be made clear. My own view is that since consolidation or unification into a limited number of systems is recognized as tending to promote adequacy of transportation service, and as the existing systems have grown up during a long period of development under the state and federal laws in effect at the time, no sufficient reason appears for declaring unlawful henceforth what has heretofore been lawful. I do not know that this view is shared by any other member of the commission.

Acquisition of Securities

Paragraphs (23) to (28), inclusive, provide for the acquisition of voting securities issued by carriers, as defined in paragraph (30) (b), or of railway properties or of rights or interests therein, by exercise of the power of eminent domain as conferred and regulated by these paragraphs, to which reference is made in paragraphs (15) and (17), already considered. It is not my purpose to discuss the power of Congress to enact what is here proposed. The railway property of a common carrier is private property devoted to public use and, as such, subject to regulation. The power to take the private property of one common carrier engaged in interstate commerce and make it the private property of another common carrier so engaged, the property under the ownership of either being at all times devoted to public use and, as such, subject to regulation, is one thing. Shares of stock and other securities issued by a common carrier are the private property of the holder and are not devoted to public use. The power to take this private property from one holder and make it the private property of another holder, the property itself being at no time devoted to public use in the hands of either holder, is quite another thing.

Without attempting to analyze the authorities relied upon in support of such taking under eminent domain as is here contemplated, and conceding for the purpose of this discussion, but

only for that purpose, the power of Congress, your attention is invited to the propriety and wisdom of these provisions which call for the most careful study.

I venture to suggest that the provisions of this bill with respect to condemnation are not of a nature to encourage the investment of fresh capital in the shares or obligations of common carriers by railroad and to that extent will not further attainment of one of the important ends to be sought by consolidation of carriers into strong and well-matched systems.

Commissioner Lewis suggests that paragraph (30) and each succeeding paragraph of section 5 should become paragraphs (31) *et seq.* and that a new paragraph (30) should be inserted, the text of which I now lay before you.

(30) The par value of the stocks, bonds, notes or other evidence of interest in or indebtedness of a corporation formed by a consolidation or unification under the provisions of this section shall not exceed the par value of such securities of the corporations consolidated or unified; nor shall the par value of the bonds, notes or other evidence of indebtedness of a corporation formed by such a consolidation or unification exceed twice the amount of the capital stock actually paid in; *provided* that the commission shall have authority to reduce the aggregate of securities to be issued below the aggregate of the securities of the corporations consolidated or unified, and/or to grant relief in its discretion from the provisions of this paragraph upon a showing that such relief is reasonably necessary in carrying out the provisions of this section.

In support of this amendment he cites statutory provisions of various states. He observes, as a noteworthy feature of the bill, the elimination of the present prohibition in section 5 (6) (b) against issuance of stocks and bonds by the corporation which is to become the owner of consolidated properties in excess of the value of the consolidated properties as determined by the commission. That subdivision (b) further provides that such value be ascertained by the commission under section 19a of this act, and makes it the duty of the commission to proceed immediately to ascertain such value upon the filing of an application for consolidation. Discharge of that duty would add enormously to our work under the valuation section quoted, and for many reasons which might be developed would retard the process of consolidation without corresponding public benefit. Nothing in the law now prohibits a carrier from owning property which is not devoted to the service of transportation. Its capitalization may properly represent in part such non-carrier property. Limitation of that capitalization to the value of its carrier property, excluding the other, seems inappropriate so long as it is permitted by law to acquire, own and enjoy such other property. The elimination of these requirements for valuation as an incident of consolidation is one of the great improvements in the existing law made by the bill here under consideration, and the provisions of section 20a, regulating the security issues of carriers by railroad subject to the act, seem to be adequate in respect of carriers which emerge from the process of consolidation. As indicated at previous hearings I am opposed to putting such carriers on a footing different from that of other carriers, already in systems, with which they must compete, and should compete on equal terms.

Section 3 of the bill amends the existing paragraph (2) of section 5 which has been referred to by me as the "postern gate," the only door left open since 1920 through which carriers seeking to come together could make progress toward that end. The provisions in the present bill for consolidation of carriers or unification of their properties in the various forms indicated largely remove the need for this paragraph and in the opinion of some members of the commission its retention or amendment as here proposed will serve no useful purpose. It is my view that occasions will arise for resort to this paragraph in many of the minor details of carrier adjustment, where acquisition of control or additional control by carriers of other carriers has no discernible relation to the policy declared in paragraph (4) or any plan to be adopted under paragraph (19) of section 5.

Recapture Provisions Criticized

Sections 4, 5 and 6 of the bill amend section 15a of the interstate commerce act in respect of the recapture provisions of that section, apparently by way of providing inducement or stimulus to carriers to effect such consolidations or unifications as are contemplated by the bill. As I have explained to you, it is not my view that stimulus or inducements are needed at the present time, or for the visible future. I deprecate any hot-house growth, any forcing process, in the development of instrumentalities which are to serve our commerce even more adequately than it is being served now.

The bill changes these provisions so as to make the whole of the excess above 6 per cent recoverable by and payable to the commission except as provided in paragraphs (7), (13) and (15). Paragraph (7) qualifies the new provision for recapture of the entire excess by providing that, until January 1 following the adoption of the plan, one half of the excess shall be placed in the carrier's reserve fund. Paragraph (2) of section 4 of

the bill makes that section effective on January 1 following the passage of the bill, but leaves the existing paragraphs (6), (7) and (8) of section 15a in force in respect of any excess income prior to that date. Section 5 of the bill amends paragraphs (10) to (16) inclusive of section 15a of the existing act and apparently becomes effective upon passage of the bill.

In brief, pending adoption of the plan, one half of the excess over 6 per cent realized by carriers for any calendar year is to be distributed among carriers falling short of 5 per cent for that year, in proportion to the amounts by which they fall short, but not so as to exceed an aggregate of 5 per cent for each when its net railway operating income, and its share of the excess so distributed, are added together.

Apparently the carriers realizing an excess over 6 per cent may be in any part of the country, and those realizing less than 5 per cent may also be in any part of the country, but for convenience, and as a short cut to an illustration of how this distribution would work, I applied it to a diagram and tables put out last summer in demonstration of what is called the "Potter Plan." These are confined to class I carriers in the Western district, and show net railway operating income for 1924 based on investment in road and equipment and materials and supplies. The carriers listed number 64. Of these, 11 had a return in excess of 6 per cent, 6 between 5 and 6 per cent, and the remaining 47 fell short of 5 per cent by an aggregate of \$14,587,551. The 11 had a return above 6 per cent aggregating \$5,641,564, one half of which would be \$2,820,782. This amount if distributed among the carriers having return of less than 5 per cent would show results almost negligible. The Milwaukee would receive the largest share so distributed, the Southern Pacific System the next, and the Northern Pacific the next. But of the 11 showing return over 6 per cent all but two now form part of systems to which their excess would naturally go, and those two are the Duluth, Missabe & Northern and the Nevada Northern. Their combined excess over 6 per cent was \$1,077,044. The principal carriers of the Western district with the exception of the Santa Fe system all appear in the list of those showing a return of less than 5 per cent. The results suggest that as an incentive to consolidation the distribution of excess over 6 per cent among carriers falling short of 5 per cent may be far from effective, and that a careful survey might well be made before resort is had to such a distribution.

Valuation for Recapture a Staggering Task

But whatever the effect upon the carriers the effect upon the commission would be immediate, and stunning. While our program of endeavor to complete primary valuations of railway properties within 3 years from last July is still being pursued, and encountering great difficulties, we would be called upon to turn aside and determine the value of the railway properties of each carrier, over 1000 of them, for each year, and to police and verify the net railway operating income of each carrier, for each year, in order to determine whether that income exceeded 6 per cent or fell below 5 per cent of the property value, and by how much. This work is now confined to carriers which seemingly have exceeded 6 per cent. Our policing thus far of their accounts has increased their showing of net railway operating income by 19 millions and reduced it by 5 millions, a net aggregate of over 14 millions. In order to establish the value and the amount recoverable it is necessary to put the pertinent facts in evidence in hearings before the commission. In order to recover one half of the excess over 6 per cent it may be necessary in most instances to go to court and there obtain a judgment, which naturally will be subject to review. That is our heavy task under the present recapture provisions, but if they are amended as here proposed the scope of the work will be so increased as to lay upon us a burden hardly to be borne with such men and money as are likely to be available. Candor compels us to state this plainly.

Unless the Congress can lawfully, expressly and effectually authorize the use, pending completion of the valuations, of some convenient base, such as the property investment account of the carrier, on which to compute the percentage, and the use, unpoliced, of the carrier's net railway operating income as shown in its annual reports, for determination of the amount of its return, we do not see how the new recapture provisions can be made workable. In any event, whether or not the recapture provisions are amended as proposed in this bill, it seems fairer that the combined return for a period of, say, three years should be used as a base rather than the return for one. With each succeeding year this period would shift so as to drop out one year. To illustrate, for recapture maturing in 1925 the combined return for 1922, 1923 and 1924 would be used; in 1926 the combined return for 1923, 1924 and 1925. This shifting base, broadened to embrace 3 years, would tend to equalize the vicissitudes which might make the return for one year unusually high and for another unusually low. I need not dwell upon other features of these new recapture provisions as, for example, those

of paragraphs (10) and (12) for the making of distributions. These are deemed to be too indefinite, without indication of the purposes for which the moneys are to be used by the carrier, and without requirement for accounting. It may be also that industrial common carriers whose return is affected by the intraplant or other non-common-carrier service performed for the owning industry, should be excluded from sharing in these distributions.

Section 7 of the bill appropriately provides that the amendments here made shall not affect any action taken under paragraphs (2), (4), (5) and (6) of section 5 of the interstate commerce act prior to the passage of this bill, but does not in terms provide for proceedings already begun, such as those now pending, in which action remains to be taken at some time in the future.

I pass now to some general observations. The desiderata, if not the essentials, as I see them, of such railway systems are these:

Each should have a diversified traffic, well-balanced; each should be large enough to develop and deliver the major part of its traffic, but not too large for effective management; each should originate on its own rails its fuel supply, and, in so far as may be, its other supplies; each should connect one of our coasts, ocean, gulf, or lake, with focal points in the interior; each should so interlace in its own territory with others that all important points in that territory will have competitive service; and each should connect with another or others in such wise that no important traffic throughout this broad land need have more than a two-line haul. Such systems must compete with existing systems, and with each other. They should not be handicapped by new requirements from which the competitor is free. All should be treated alike and be subject to one and the same federal regulatory law.

In providing for the growth of such systems the end and aim should be to provide the people of the United States with adequate transportation service. For the present, at least, that growth needs no stimulus or forcing. It only needs opportunity, through removal of obstacles, and under proper safeguards. Such removal and safeguards can be provided by wise legislation, and in this, as in most things, the simplest is the best. As illustrative of the form which such legislation might take I submit the text prepared by the commission in 1919 as an amendment of the first paragraph of section 5 which, then as now, deals with the pooling of freights and divisions of earnings. This proposed amendment formed part of H.R. 14820, the Esch-Pomerene bill, so called, which passed the House, but later, in conference, became the transportation act, 1920, as now worded and in force.

I invite your attention to the words:

"will be in the interest of better service to the public, or economy in operation, or otherwise of advantage to the convenience and commerce of the people, the Commission shall have authority by order to approve and authorize such unification, consolidation, merger, or pooling, under such rules and regulations, and for such consideration as between the said carriers, and upon such terms and conditions, as shall be found by the Commission to be just and reasonable in the premises."

If the essentials are anywhere more clearly stated than in this text I have not seen them. Commissioner Esch and I are still of opinion that, with the addition of express grant of corporate authority to the carriers and some other changes born of experience, such legislation as this would suffice and be more consonant with the other provisions of the act than the bill now before you. But if it be deemed advisable that a plan should still appear above the horizon, to become available when the law of attraction has ceased to work, or slackened, among the carriers themselves in order that due provision may be made for rounding out and completing such systems as may then require development, I am not averse to that. In the meantime we shall become informed by experience in dealing with the applications which press against the bars and await your action.

At the conclusion of the statement Senator Pittman began an argument that an incentive, if not compulsion, is required to make the railroads do something that is in the public interest but that may not be in their own interest. Mr. Hall replied that what is proposed is in their interest and also that he had not observed that railway executives are any more lacking in appreciation of their public functions than others. When the senator asked whether he believed the commission should "control" the railroads or "help" them Mr. Hall said he believed in "regulating" them, but not beyond the extent contemplated by the commerce clause of the constitution, which Senator Pittman said was an unsatisfactory answer.

Senator Cummins said that he would admit that the opportunities of the commission for reaching conclusions on

the questions presented by the bill were better than his own but that he felt that only one conclusion could be drawn from Mr. Hall's statement, that the bill should be abandoned, but that he did not think so. Mr. Hall said he had no desire to create an impression that Senator Cummins was unaware of some of the conditions he had mentioned in discussing the bill and that the commission greatly appreciated the enormous service that Senator Cummins had rendered the country and the great interest he has shown in transportation matters.

Nathan L. Amster appeared before the committee on February 5, expressing the view that the railways should be combined into as few systems as possible and that it would be a good thing to compel consolidations if it could be done. If it could not be done directly it might be done by readjusting rate divisions. Senator Watson said the committee had "gathered that there had been a change in the attitude of the railway executives and that practically all of them are ready to consolidate and are going ahead with their plans."

Labor Bill Hearings

WASHINGTON, D. C.

HEARINGS before the Senate and House committees on the railway labor bill were expected to be concluded during the week and favorable reports on the bill without substantial change are anticipated from both committees, although there are some members of both who declare themselves as not satisfied with the bill from the standpoint of protection of the public interest.

James A. Emery, general counsel of the National Association of Manufacturers, gave his argument for amendments to the bill before the House committee on interstate and foreign commerce on February 4 and was questioned at length by members of the committee.

"If the repeal of existing public safe-guards is to be accomplished without the substitution of any equivalent protection, the price of the proposed compact is the utter exclusion of the public from the picture," he said. "If Congress does not regard the Labor Board as the best instrument through which to operate the safeguards it has established it may employ the Interstate Commerce Commission of some other instrumentality. Congress, as the trustee of the public interest, cannot afford to surrender every restraint and a minimum of compulsion upon the parties as the price of permitting them to engage in an experiment in the revival of methods of negotiation, mediation and arbitration, which, in thirty-five years of experience have signally failed to prevent serious interruptions of service. The critics of the proposal are merely urging in the public interest the minimum of public restraint upon the parties which experience demonstrates to be essential for adequate public protection."

Donald R. Richberg, general counsel for the railway labor organizations, made his concluding statement before the Senate committee on interstate commerce on February 8 and Alfred P. Thom, general counsel of the Association of Railway Executives, was to give a final statement before the hearings are concluded.

Chairman Watson said the committee had received many resolutions from various organizations, particularly manufacturers' associations, urging amendments to the bill to protect the public interest.

Mr. Richberg submitted a summary of the laws relating to industrial relations on the railways for the past 40 years, which he said showed that the proposed plan is the next logical step forward and that the failure of the past

had resulted from efforts to provide for compulsory investigation. The official record, he said, showed that mediation had had an amazing record of success except in 1914 and 1916 and that in both of those cases the employees had assisted in maintaining the status quo during long periods of investigation and mediation by public authorities before resorting to a strike order. He charged that Mr. Emery had grossly misrepresented the situation that had existed in both of those years and he submitted a documentary record of the 1916 controversy which led to the enactment of the Adamson law to show that the strike was not ordered until after the railways had rejected the President's proposal for a settlement by the adoption of the eight-hour day. "The parties have written into the bill provisions which they think will preserve the status quo during the period of investigation," he said. "If the time ever comes to write a compulsory law Congress should not make the mistake of trying to combine in it compulsion and persuasion and there must be compulsion on both sides. Also if the railway employees are to be treated as public servants they will also insist on being given the protection of civil service laws and you will have gone practically to government ownership."

Ralph M. Easley, chairman of the executive council of the National Civic Federation, appeared before the House committee in support of the bill, which he said was much more likely to produce satisfactory results than the plan of the present law, and E. J. Rich, general counsel of the Associated Industries of Massachusetts, made a statement criticizing the bill along the same lines as those advanced by Mr. Emery. Mr. Rich also appeared for the Associated Industries of Maine and Vermont, the Manufacturers' Associations of New Hampshire and Connecticut, and the Employers' Association of Rhode Island.

Is Attitude Toward Railways Changing for Worse?*

By Kenneth F. Burgess

General Solicitor, Chicago, Burlington & Quincy

THERE was a time—a quarter of a century or more ago—when the railroads exerted great political power. With the cry against big business in politics and the revulsion of feeling against the political activities of railroad corporations, there came new laws, new concepts of political morality and new railroad managements with entirely changed ideas of right and duty. The railroads ceased to be a power in politics; in fact, they ceased to have any power in politics. Though the railroads of the United States are today the second largest industry in the country from the standpoint of either number of persons employed or the capital invested, they have little or no power in shaping legislation even in respect to their own activities. Bowing to public desire, the railroads withdrew from the political arena.

They were told that they should content themselves with providing adequate and efficient service and that the public, through an impartial administrative tribunal, would see that the rights of their investors and employees were protected. They were assured that laws for the guidance of the tribunal would be designed to curb special privilege, sectional jealousy and preference and discrimination of every kind. This tribunal, the Interstate Commerce Commission, has ever held high the concept of public duty thus declared. While we, who have practiced before it, have often felt aggrieved over decisions in par-

ticular cases, we have always believed that the membership as a whole has followed closely this high ideal of public service.

But meanwhile a most curious paradox has developed. The railroads were driven from politics by the cry that special interests should not make our laws. That was right. The railroads heeded. And yet, a few years later, what do we find? We find other interests seeking to interfere, through the medium of arbitrary laws, with the working of this impartial administrative rate tribunal. These interests are just as much special interests in this day as the railroads were special interests in a former day. The Hoch-Smith resolution, which is a menace to our whole economic progress, was designed for the special purpose of giving certain agricultural products preferential treatment to which they would not otherwise be entitled. Other pending measures are designed to secure sectional preference which would not accrue under the law. Only last week the American National Livestock Association started a new drive for additional laws preferential to livestock and adverse to other forms of traffic. In other words, we find ourselves passing from a period of political non-interference with railroad management and railroad operation into a period in which those who have special measures to advocate, seek legislative aid, instead of relying on the merits of their controversy as these may be judged by the commission.

My point is this: If these recent developments mark a real change in our legislative policy respecting railroad regulation, it behooves all of us to know it. Are the railroad corporations themselves to be driven back into politics for the purpose of defending themselves, and in order to secure the "square deal" which was defined in 1905? Are all the shippers of the United States to be forced into political activities in order to protect themselves against preference and discrimination? Is the ultimate relief for every group interested in railroad transportation to be found through the medium of special acts of Congress, rather than through decisions of the Interstate Commerce Commission? Frankly, I do not know the answer to these questions. Time will tell.

The Danger in This Change of Attitude

I do, however, venture this prediction, that if we are really facing a fundamental change in our national attitude toward transportation problems, there is grave danger that the adequacy of our transportation system will suffer. For three years we have been free from car shortage and from delay in transportation by railroad. For three years the shippers have had a reliability and expedition of railroad service which they had not theretofore known. There is no present indication that the quality of this service is going to suffer in the immediate future. The sole business of the railroad corporation is to furnish railroad transportation, and like any merchant, it realizes that satisfied customers are its stock in trade. But let us not forget the cloud on the horizon to which I have referred.

If this cloud is the signal of an oncoming storm, let us prepare for it in order that we may not be caught unawares. It may be that the cloud will pass by without harming us, and I am one of those who believe that it will. But we can not afford to shut our eyes to it or to the consequences if a storm ensues. It behooves all of us to do the thing that lies within our power to prevent such interference without present system of regulation as will transform it from impartial regulation into partisan regulation, from regulation in the public interest into regulation on behalf of special interests, from rate-making based upon the prevention of unjust discrimination into rate-making which shall be ruled by special preference and class distinction.

*From an address delivered before the Junior Traffic Club in Chicago on February 4.

The Gulf Coast Lines

*Nucleus of group of Missouri Pacific subsidiaries
earned \$16.76 a share in 1925*

THE New Orleans, Texas & Mexico, the parent company of the prosperous group of railroads designated as the Gulf Coast Lines, in its preliminary report of earnings for 1925 shows net corporate income after charges of \$2,514,163, equivalent to \$16.76 a share on the outstanding stock. This compared with \$2,763,756, or \$18.42 a share in 1924. Total operating revenues in 1925 were slightly larger than in 1924 but there were still larger increases in total operating expenses



The Gulf Coast Lines and Recently Acquired Properties

and as a result a decrease in net. The increase in expenses was principally in maintenance of equipment and in transportation, due in the latter case presumably to increased prices for fuel oil. The freight ton-miles were about ten per cent in excess of those of 1924, this making 1925 the second year in succession in which records of freight traffic volume were broken.

Acquired by Missouri Pacific in 1924

The group of roads forming the Gulf Coast Lines constitutes a rather interesting property which in recent years has had a remarkable increase in traffic and prosperity and which has of late acquired a mileage of other carriers considerably greater than its own. The group is now a part of the Missouri Pacific system, being acquired by the latter through purchase of a majority stock interest in the New Orleans, Texas & Mexico (the parent company), in May, 1924, at \$120 a share, payable in 7 per cent notes. In April, 1925, the Missouri Pacific owned \$11,316,700 or three-quarters of the stock outstanding and at that time made an offer to purchase additional shares, payable also in 7 per cent notes. The Missouri Pacific was recently reported as now owning

about 86 per cent of the stock. The New Orleans, Texas & Mexico initiated dividends on a 6 per cent basis in December, 1920, changed the rate to 7 per cent in March, 1923, and concurrently with the announcement of the Missouri Pacific acquisition of majority control declared an extra dividend of 16½ per cent.

Extent of Lines

The Gulf Coast Lines operate 922 miles of railroad. The lines were built as a subsidiary of the old St. Louis & San Francisco and it was generally believed that they were intended to be part of an ambitious project to carry the "Frisco" on to Tampico or Mexico City. However, when "Frisco" ambitions were thwarted the Gulf Coast Lines went into receivership and were reorganized in 1916 with the "Frisco" stock interest eliminated. The railroad extends from New Orleans, La., to the Rio Grande river at Brownsville, Tex., paralleling the coast

TABLE I—INCOME ACCOUNT

	Year 1925	Year 1924
Freight	\$11,787,381	\$11,180,225
Passenger	2,044,295	2,094,656
Total operating revenues	14,718,818	14,251,547
Maintenance of way and structures	2,216,018	2,480,419
Maintenance of equipment	2,401,637	1,879,741
Traffic	454,873	731,763
Transportation	4,161,456	3,588,280
General	621,139	560,530
Total operating expenses	9,828,640	8,846,612
Net from railway operations	4,890,178	5,404,935
Railway operating income	4,124,145	4,672,197
Net railway operating income	3,757,859	3,945,091
Net after charges	2,514,163	2,763,756
Earnings on stock	\$16.76	\$18.42

of the Gulf of Mexico and crossing nearly every one of the rivers which drain the southwestern part of the United States. Inasmuch as the territory served is the coastal plain the road is favored with ruling grades not exceeding 0.3 per cent which will explain in part the low operating and transportation ratios.

The New Orleans, Texas & Mexico operates the lines in Louisiana. It owns practically all the stock of the three associated companies, which are the Beaumont, Sour Lake & Western, the St. Louis, Brownsville & Mexico and the Orange & Northwestern. The four companies together constitute the Gulf Coast Lines. The mileage owned by these four carriers totals 823. They do not form a continuous line and there are 99 miles of trackage rights over lines of other carriers which form connecting links, such notably as the 46 miles over the Kansas City Southern and its Texas subsidiary, the Texarkana & Fort Smith, between DeQuincy, La., and Beaumont, Tex. The mileage between Baton Rouge and New Orleans is not included in the total of 922. Between these points Gulf

TABLE II—GULF COAST LINES OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1925

Year	Mileage	Revenue ton-miles	Revenue Passenger-miles	Rev. per ton-mile cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Net charges for additions and betterments
1916	959	341,714,000	74,853,000	1.24	6,410,378	4,321,277	2,089,101	67.41	1,653,119	1,223,118	.....
1917	920	375,451,000	73,749,000	1.77	6,661,229	4,193,326	2,467,903	62.95	2,082,971	1,253,687	302,578
1918	920	382,128,000	77,954,000	1.44	8,013,713	5,776,515	2,237,199	71.90	1,933,068	Def. 1,140,997	91,390
1919	920	447,893,000	90,695,000	1.29	9,302,737	7,346,993	1,955,745	78.98	1,228,744	751,646	69,634
1920	921	668,622,000	112,273,000	1.40	13,435,246	11,129,562	2,305,683	82.84	1,686,956	1,373,108	1,101,440
1921	922	496,425,000	67,062,000	1.64	11,090,101	8,215,473	2,874,628	74.08	2,141,708	1,813,268	1,640,680
1922	922	524,118,000	57,912,000	1.49	10,413,975	6,926,774	3,487,201	66.51	2,815,848	1,721,793	423,749
1923	922	612,232,000	69,423,000	1.47	11,911,420	7,456,564	4,454,857	62.60	3,450,671	2,428,153	616,695
1924	922	801,423,000	66,599,000	1.40	14,251,547	8,846,612	5,404,935	62.07	3,945,091	2,763,756	197,462
1925	922	.....	.....	...	14,718,818	9,828,640	4,890,178	66.78	3,757,859	2,514,163	.....

Coast Lines traffic moves over the Yazoo & Mississippi Valley under a special traffic agreement. The New Orleans, Texas & Mexico owns a controlling interest also in the 115-mile New Iberia & Northern but its earnings and usual annual deficit are reported separately.

Acquisition of Subsidiaries

It was noted above that the New Orleans, Texas & Mexico has in recent years been undergoing a remarkable expansion. This began in February, 1924, with the purchase from the Freeport Texas Company and the Southern Pacific of the Houston & Brazos Valley which with related facilities has a total mileage of 43. In June, 1924, the Gulf Coast Lines acquired the International-Great Northern, operating 1,195 miles which, as noted in an article in last week's *Railway Age*, has possibilities, but has thus far been unable to realize on them. In June, 1925, the next step was taken in the acquisition of the San Antonio, Uvalde & Gulf operating 318 miles, extending from Corpus Christi to San Antonio and other inland points in southern Texas. In November, 1925, the Interstate Commerce Commission authorized the acquisition of the Sugar Land, the Asherton & Gulf and the Rio Grande City, totaling about 93 miles. These acquisitions are expected to give the Gulf Coast Lines several valuable feeder lines. What is probably more important it is expected that the territory served will derive much benefit from receiving Gulf Coast Lines and Missouri Pacific service, the acquired properties being helped by the latter's management. Thus far, the earnings of all but the original four associated properties have continued to be reported separately.

Traffic

The traffic of the Gulf Coast Lines was in 1924 (it will be some time before 1925 figures are available), about as follows: Products of agriculture 18 per cent; animals and products 1 per cent; products of mines 33 per cent; products of forests 15 per cent and manufactures and miscellaneous about 30 per cent. About one-half of the manufactures and miscellaneous tonnage was refined petroleum. The chief items under products of mines were crude petroleum and clay, stone, sand and gravel. The larger proportion of the tonnage of manufactures and products of mines was received from connections. The lumber originates chiefly in eastern Texas and Louisiana and was formerly larger in volume. One of the interesting features of the Gulf Coast Lines traffic is the large and growing tonnage of fresh vegetables. In recent years the Gulf Coast Lines has been favored by rapid expansion of the agriculture of southern Texas and the Rio Grande valley. The territory is so far south that it is probably already shipping fresh vegetables to northern markets. Irrigation is required in the Rio Grande valley; considerable success has been had there with citrus fruits, particularly.

The northbound movement of traffic on the Gulf Coast Lines exceeds that southbound. The east end of the system has the heavier traffic density, for one reason because the line picks up considerable tonnage for New Orleans at connecting points with other railroads.

Increased Earnings

The road's freight traffic broke all previous records in 1925. In Table II are given some figures of Gulf Coast Lines traffic and earnings for the years since 1916. The revenue ton-miles for 1925 are not yet available but it is to be observed that the figure for 1924 was over twice that of 1916. To be exact the increase was 135 per cent, and that for 1925 will show an increase over 1916 of about 160 per cent. This remarkable increase has been

translated into net operating income in full measure. The best measure is comparison with the standard return or average annual net railway operating income for the three years ended June 30, 1917, which for the Gulf Coast Lines was \$1,102,215. The 1925 net railway operating income exceeded this by no less than 241 per cent. It would apparently be difficult to find a more striking example of the law of increasing return.

Operating Efficiency

The Gulf Coast Lines have been favored by development of a hitherto neglected territory. Something must be said, however, about the efficiency of the road's operations as it has helped develop that territory. Due cognizance must, of course, be given to the favorable effect

TABLE III—COMPARISON OF SELECTED FREIGHT OPERATING STATISTICS

	11 Mos. 1925	11 Mos. 1920	Per cent of change	
			Inc.	Dec.
Mileage operated.....	922	920	...	...
Gross ton-miles (thousands).....	2,388,896	1,526,876	56.4	...
Net ton-miles (thousands).....	894,410	673,459	32.8	...
Freight train-miles (thousands).....	1,365	1,133	20.4	...
Freight locomotive-miles (thousands).....	1,385	1,146	20.8	...
Freight car-miles (thousands).....	63,569	40,544	56.7	...
Freight train-hours.....	118,253	103,277	14.5	...
Tons of coal consumed by freight locos.....	131,066	117,289	11.7	...
Car miles per day.....	38.5	22.5	71.2	...
Net tons per loaded car.....	23.7	25.0	...	5.2
Per cent loaded to total car-miles.....	59.3	66.3	...	10.5
Net ton-miles per car-day.....	542	374	44.9	...
Freight cars per train.....	47.5	36.7	29.4	...
Gross tons per train.....	1,750	1,348	29.7	...
Net tons per train.....	655	595	10.1	...
Train speed, miles per train-hour.....	11.5	11.0	4.5	...
Gross ton-miles per train-hour.....	20,202	14,784	36.7	...
Net ton-miles per train-hour.....	7,564	6,521	16.5	...
Lb. coal per 1,000 gross ton-miles.....	101	...	...	...
Loco. miles per loco. day.....	71.6	74.7	...	4.1
Per cent freight locos. unserviceable.....	20.2	18.1	2.1	...
Per cent freight cars, unserviceable.....	5.0	5.9	...	0.9

on operating costs of the 0.3 per cent ruling grades. It is, however, noteworthy that in 1924 the cost per freight train-mile (inclusive of locomotive repairs, engine and train crew wages, fuel, engine house expenses and other locomotive and train supplies) was only \$1.204 as compared with the average for the southwestern region of \$1.435 or with the average for the roads of the country as a whole of \$1.600. The cost per 1,000 gross ton-miles for the Gulf Coast Lines in 1924 was \$0.629, comparing with the average for the southwestern region of \$1.042 or that for the United States as a whole of \$1.007. The low figures for any region was that for Pocahontas region and its cost per 1,000 gross ton-miles in 1924 was \$0.824, or 30 per cent higher than that for the Gulf Coast Lines. Compilation of this unit is no longer required by the Interstate Commerce Commission so comparisons for 1925 will not be possible. Remarkable efficiency is shown by the Gulf Coast Lines in fuel consumption. The road uses oil and for the first 11 months of 1925 the coal equivalent showed a figure of only 101 lb. of coal per 1,000 gross ton-miles. The St. Louis Southwestern succeeded in tying this remarkable showing and the Missouri-Kansas-Texas bettered it with a figure of 100 but the average for the southwestern region was 129, that for the western district 137 and that for all roads 139.

These factors help explain the unusually favorable ratios. The operating ratio in 1925 was 66.81 and the ratio of transportation expenses to total operating revenues was 28.3. In 1924, however, the remarkably low operating ratio of 62.1 was reported and a transportation ratio of but 25.2.

Amplification of the picture of the road's operating efficiency is presented in Table III which gives a comparison of selected freight operating statistics for the first 11 months of 1925 with the first 11 months of 1920. The in-

crease in traffic is reflected in an increase in gross ton-miles of 56.4 per cent and in net ton-miles of 32.8 per cent but it is noteworthy that the increase in freight train-miles was but 20.4 per cent, in freight train hours but 14.5 and in fuel consumed but 11.7 per cent. There was, however, less efficiency in car loading but sufficiently improved movement as to increase the car-miles per day from 22.5 to 38.5 or 71.2 per cent. The increase in gross ton-miles per train-hour from 14,784 in 1920 to 20,202 in 1925 was 36.7 per cent which may be compared with the increase

for the southwestern region as a whole of 31 per cent.

It is apparent that the Gulf Coast Lines form in every way a most advantageous acquisition for the Missouri Pacific System. The question now is as to whether the Gulf Coast Lines can lend some of their prosperity and managerial efficiency to their new acquisitions, the International-Great Northern and the San Antonio, Uvalde & Gulf which although serving much the same territory, thus far have not done anything remarkable as concerned their net earnings.

Main Tracking of Freight Trains*

Handling of trains to destination without break-up permits greater utilization of intermediate yards for local traffic

By D. W. Dinan

Assistant General Manager, New York Central, Syracuse, N. Y.

ON the New York Central, as well as on many other railroads, the main tracking of freight trains, by which is meant the making up at a far distant terminal solid trains to run through to a final terminal without break-up at intermediate yards, has been given careful and earnest study. Not being familiar with the detailed operations of other railroads, my remarks on main tracking, must of necessity be confined to the progress made on the New York Central. We consider main tracking one of the most important solutions in the handling of through business. This in turn permits of a greater utilization of our division terminal yards in the handling of our local traffic.

The railroads, at the present time, are enjoying a remarkable increase in business and I believe it is admitted that the present heavy traffic is being handled more expeditiously than ever before. There has not only been an increase in our through business but in local traffic as well. Further, while we have increased yard facilities at some points, at others, we have not and, in many instances, further extensions of terminal facilities, while possible, would be very expensive, as industries have surrounded our railroad yards and additional property, to permit of expansion, could only be obtained at an exorbitant figure. Also it would mean discommoding our patrons. However, our yard facilities have not increased in proportion to the traffic which we are handling but we are moving it with greater despatch, avoiding congestions which have been a serious phase of railroad operation in the past. Limited yard facilities and increased business to be moved have brought the railroad officials to realize that the best way to cope with the situation is by main tracking and, on behalf of the New York Central, I take pride in saying that we have made some truly remarkable strides in this direction in the past few years, the results of which are evident in the expedited movement given shipments as compared with the service given prior to the inauguration of the main tracker.

The system of making up trains to run through from one division terminal to the next has many disadvantages and practically no advantages, so far as the handling of through traffic is concerned. It is without question a slower operation in the handling of long haul traffic, resulting in reswitching and rehandling of cars, with the

greater possibility of cars not making proper connecting trains, also being damaged in yard switching, necessitating cars making repair track movement, entailing considerable additional switching and expense, with resulting complaints, which in many cases are justified.

The main tracker, when properly made up at originating terminal, requires no rehandling at intermediate yards and it is obvious that cars handled in the main tracker have a much better opportunity of reaching their destination without delay and to the satisfaction of both shippers and receivers than if handled in trains that are broken up at each division terminal.

On the New York Central, eastward destination trains are made up at Elkhart, Ind., to run through to Buffalo, N. Y., DeWitt, N. Y., and Selkirk, N. Y., yards without a breakup, a distance of 400 to 700 miles, passing through from two to four intermediate yards. Such trains are started from Elkhart, Ind., on regular schedules and, if there are insufficient cars to make trains solid for the destination or breakup yard, the destination cars are placed in a group and the train is filled out with cars for the next division terminal, at which point the fill-out is cut off and a group for final destination added. At the Niagara frontier, a point from which we receive a large volume of business from industrial plants, in addition to freight from the several connections, two solid trains are started each morning for New York, two for Weehawken, N. J., two for the Boston & Albany, and one for the Boston & Maine, which are run through to destination intact, protecting only the traffic for these points. An idea of the time saved can be had by taking into consideration the schedule of train BW-2, which train leaves East Buffalo at 8 a. m., and arrives at Weehawken the following morning for early delivery.

The group system is necessary to take care of the traffic flow. When traffic is normal, the trains are solid destination. However, on days following Sundays and legal holidays, when loading is light, the group system provides the same service through to destination as the solid train and avoids the holding of any cars an unusual length of time. As the traffic flow increases, solid destination or destination group sections of the trains are run, some of the sections running from Toledo and Cleveland. During the grain shipping season, solid trains of grain are run from Buffalo to New York, Boston, Philadelphia and Baltimore, such trains being handled

*Abstract of a paper presented at a meeting of the Central Railway Club held at Buffalo, N. Y., November 12, 1925.

intact through the several intermediate yards to final destination and without delay.

This system is true not only of highly perishable freight and live stock, but of all classes of freight shipped via our line. From the Pittsburgh district, solid trains of steel and steel products are run through to DeWitt, a distance of about 350 mi., eliminating yarding and re-handling at two intermediate yards. At DeWitt, the cars are switched into solid trains for eastern points. Also, during the heavy fruit season in Western New York, we run solid trains from Charlotte, N. Y., eastward without yarding at Rochester, DeWitt or Selkirk and westbound trains are run direct from Charlotte to points in the west.

Westward empty trains are made up at DeWitt which will run to Elkhart, Ind., without breakup, a distance of about 600 miles. Also solid trains of empty cars for other western points are run, such as Toledo, Cleveland and points on the P. & L. E. and Big Four. Solid trains of empty coal cars are run for the coal fields of Pennsylvania and the west. In the westbound loaded trains, we have for example a train leaving New York each night which protects all loads for Chicago from the various New York City stations through to destination. At DeWitt, the Chicago loads from the connecting trains from the B. & A., B. & M. and other points east of DeWitt, are added, which makes practically a solid Chicago train leaving DeWitt. In addition to this train, practically solid trains are made at DeWitt, from this group of trains, for the Big Four, Michigan Central and Chicago connections.

Our patrons are much pleased with this service and it is not unusual to receive requests from them to forward their shipments in the main tracker, being confident that the best service will then be accorded. The main tracker not only provides expedited service but has a great bearing on the reduction of claims presented for delay and damage, the reduction being due primarily to the few switches necessary to handle cars in the solid trains as compared with the forwarding from one divisional yard to another.

In addition to the improved service rendered our patrons, there is also the question of economical operating costs to the railroads. The making up of solid destination or main trackers at originating yards has increased the cost of operation very little while the saving at the various intermediate yards has been quite noticeable. At one of our yards, where all of the movement in one direction is main track operation, the cost per car is from 30 to 60 per cent less than the car cost through other yards where terminal and intermediate switching is being done.

In conclusion, I might add that, while we have accomplished considerable in the main tracking of trains, we do not feel that we have by any means reached our limit. It is the intention to continue our study and time only will show what can eventually be accomplished but, as said before, we feel that it is one of the most important factors which promises to improve transportation conditions today.

THE DETROIT DISTRICT SHIPPERS' CONFERENCE of the Detroit Board of Commerce has been organized to further the interests of the shippers of the Detroit district through co-operation and mutual understanding. Officers of the association are: president, C. A. Sullivan, traffic director of the Fisher Body Corporation; vice-presidents, W. S. Crowl, traffic manager of the Michigan Alkali Company, and W. E. Fitzgerald, traffic manager of Lee & Cady; and secretary, H. D. Fenske, of the traffic-transportation department of the Detroit Board of Commerce.

An Air Operated Whistle Valve

AN air operated whistle blower designed to give the engineman full use of both hands for other duties has been placed on the market by the Gustin-Bacon Manufacturing Company, Philadelphia, Pa. It consists of a small air cylinder, 2 in. in diameter with a piston which operates the pull rod. The air admission

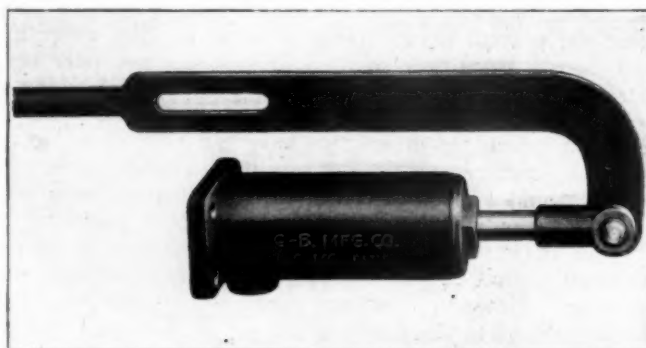


Whistle Control Valve which May Be Located for Either Hand or Foot Operation

to the cylinder and piston is controlled by a small manually operated valve mounted conveniently for the engineman and a similar valve and pipe is also located on the fireman's side.

A $\frac{3}{8}$ -in. air pipe runs from the air cylinder, located over the boiler head, to the main reservoir pipe just below the engineer's brake valve.

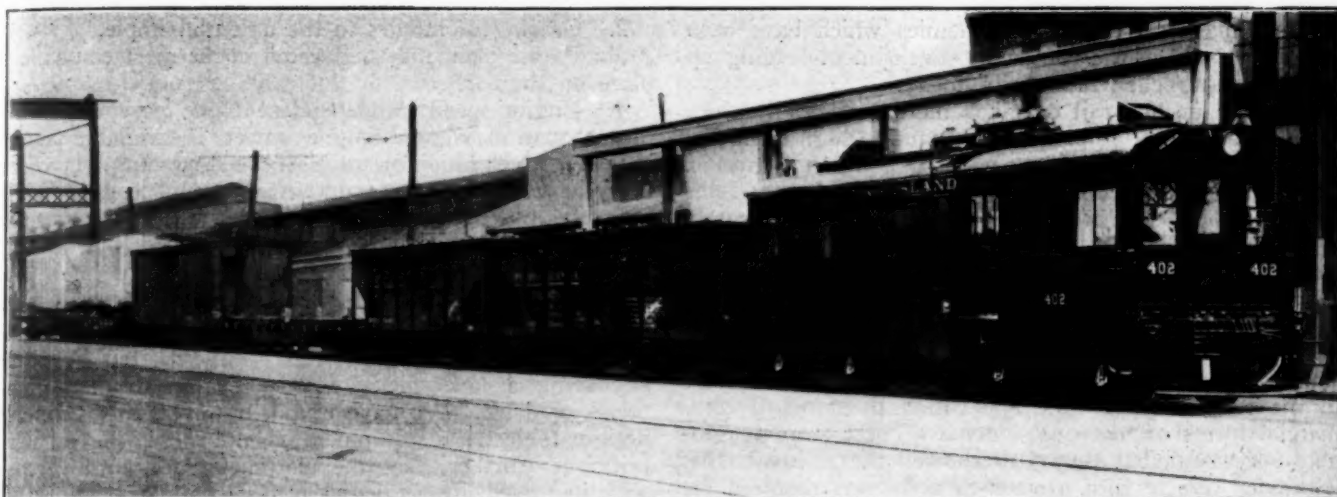
The whistle control valve may be located for either



Operating Cylinder Showing Part of the Whistle Pull Rod

hand or foot operation or both, the object being to make it possible for the engineman to sound the whistle with the least possible distraction from his other duties. This equipment does not replace or interfere with the old-style whistle cord and operating mechanism; thus providing a dual whistle control.

THE NORFOLK & WESTERN has given copies of four reels on the rough handling of freight cars and the Illinois Central has contributed 1,000 ft. of film on the proper handling of freight in the freighthouse and on the proper inspection of cars, to a library of educational motion-picture films established by the committee on freight claim prevention, Freight Claim Division, American Railway Association. The films, which are standard gage, are available to members of the division upon application to the secretary.



Brill-Westinghouse, Gasoline-Electric Switching Locomotive in Service on the Long Island

Self-Propelled Cars and Locomotives*

An analysis of the limitations and possibilities of internal combustion engines to railroad service

By A. H. Candee

General Engineer Westinghouse Electric & Mfg. Company

THERE are now approximately 21,000,000 licensed vehicles in the United States; of which approximately 17,000,000 are passenger cars. Some of these are electrically driven and some are propelled by steam, but those propelled by the gasoline engine far exceed those propelled by other means. With this number of gasoline engines operating in all parts of the country one may wonder why there are not more of them applied to the propulsion of rail vehicles.

In the first place, practically all of the intensive development of internal combustion engines for transportation work has been in engine sizes below 100 horsepower for highway vehicles. Lately there have been engines of this type built with 105 or 110 horsepower and there are some being developed which will rate in the neighborhood of 175 horsepower at 1700 or 1800 revolutions per minute. Where these higher powered engines are required the production is so small that the price is necessarily high. There have been relatively few engines available for rail car work which have had the requisite power and the stamina necessary for the continuous duty imposed by this class of service. If you consider that one year's service in a rail car with 10 hours of service per day and 300 days per year or 3,000 hours of duty is just the same hours of duty that you would get out of your automobile engine if you traveled 6,000 miles per year during a 10-year period and your average driving speed was 20 miles an hour, you may see that an engine for rail car work must be of a different character than the ordinary automobile engine.

In the second place, it requires real power to propel a car of the size of a rail car, due largely to the head-end air resistance. A few simple calculations will show this.

Wind resistance = kSV^2 .

$k = .0035$ for flat end car.

$S = 115$ square feet projected area of end of car.

$V =$ Car speed, assumed at 50 miles an hour.

From this you will find that the power required at the wheels to overcome the air resistance alone is 135 horsepower. If you then consider this car maintaining a speed of 50 miles an hour against a head wind of 20 miles an hour you will find that this figure has jumped to 265 horsepower at the wheels. Comparable figures for a passenger automobile having a projected area of approximately 30 square feet would be 35 and 69 horsepower respectively. This indicates that rail car engines must be of relatively large size and explains the marked tendency toward the use of large engines in this class of vehicle.

Development of the Rail Car

As near as can be determined the first steam rail car was brought out in 1847. A compressed air car (storage at 2,500 lb. per sq. in.) was used on the 2nd Avenue R.R. in New York in 1879. Storage battery cars were used in France in 1885, while gasoline electric and gasoline rail cars were brought out in the nineties. From 1897 on there has been a rather systematic development and in 1901 the first McKeen car was brought out. In 1902 the French-Westinghouse Company built about 50 gasoline electric cars for Hungary and a number were built in the United States. Other cars were being developed in the United States about that time.

One of the handicaps which confronted the builders of this type of rail car or locomotive was the gasoline engine. The methods and materials of today were unknown then, yet there are a considerable number of these older types of cars still running and showing satisfactory economies. But the war and the subsequent automotive development and expansion have brought different meth-

*A paper presented before the Iowa Engineering Society, Mason City, Iowa, January 28, 1925.

ods and materials and fuel economies which have been used effectively in the consistent development leading up to the self-propelled rail car of today.

The demand for rail cars has increased rapidly since the war, especially on branch lines, due to high operating costs, and the falling off of passenger and freight traffic. This traffic has fallen off largely due to the higher rates of fare and the decrease in operating cost of the privately owned automobile, of the bus, and of the truck. The first attempts to meet this demand for rail cars were made by taking a commercial truck chassis, equipping it with flanged wheels and fitting it with a passenger carrying body. In some cases a light weight four-wheel truck was supplied for the front, the two wheels being retained in the rear to permit the application of standard commercial forms of mechanical drive. These were reasonably successful, but they also showed the railroads that a heavier vehicle with greater capacity was required for general service. Thus since 1920 we have seen a gradual increase in car weights and capacities, necessitating larger engines, until now there are standard cars on the market for nearly all classes of service and with engine capacities up to 250 horsepower, capable of hauling a standard railroad coach as a trailer.

The one thing which has been very noticeable in this development is the shrinking market for the smaller cars as the larger cars are brought out. We have been trying to determine the economical limit in engine size for this type of car and it seems that we have just about reached it with the gasoline engine of 250 to 275 horsepower. Larger engines will have some field, but will undoubtedly have to be built on an uneconomical production basis, as the Diesel engine will soon enter the field in the larger capacities.

Power Transmission

A brief review of the forms of transmission of power from the engine to the wheels may be of some interest. For light cars and low engine capacities the mechanical transmission is simple and has considerable merit, this mechanical transmission being similar to the standard automotive gear-shifting system. To drive more than one pair of wheels, however, requires some complication, especially on a vehicle which has swivel trucks. This complication has been taken care of very well in several different makes of cars now considered standardized.

In the larger capacity mechanically driven cars gear shifting becomes quite a problem and wear and tear on the gearing is quite a factor. Also, with gear shifting transmissions, when "clutching-in" the engine speed must be relatively low and consequently the power low, so that full horsepower is not available during acceleration. Further, when running at high speed the engine speed is also high with resultant unnecessary wear of the engine.

Hydraulic transmission has been proposed and tried. This has a number of advantages, such as smooth speed changing, engine speed independent of car speed, and ease of control. However, the limitations of this form of drive have not yet been overcome. Among the major limitations at present are leakage and saponification of the oil. This system may have some future, but considerable development must first be carried out.

The electrical transmission is at the present time the most satisfactory system for the transmission of real power. Electrical apparatus for railway service has for a background over 35 years of service and development and has been thoroughly tried and proven. A few of the advantages are listed below:

1. Railway motors mounted on the trucks require only cable connections to the car body.

2. Gearing of motors to the axles is simple.

3. Power plant may be located in the most convenient place on the car.

4. Engine speed is independent of the car speed. This means that maximum engine power is available at all times for acceleration or for high speed running, yet when the power required to maintain a given speed is lower than the maximum, the engine speed may be lowered correspondingly. This increases engine life.

5. Simplicity of control.

6. Long life and low maintenance of the transmission as a whole.

The electrical transmission has been criticized by some as having a low efficiency as compared to mechanical forms of drive. We have found, however, that properly designed electrical equipment is not deserving of this criticism; further, that the efficiency does not decrease with increased life, as does the mechanical drive.

The Diesel Engine

Now let us consider the Diesel engine. In the past this type of engine has been large and heavy, and in such a form has not been particularly suitable for rail car purposes. There have been some of these engines operating in Sweden and other parts of Europe for 12 or 13 years in rail car service, but we may assume that if they were an unqualified success that Europe and America would be using these in large quantities, yet there are only about 20 in service. This engine weighs about 70 pounds per horsepower whereas the modern gasoline engine weighs approximately 15 pounds per horsepower. In general the sizes are also in proportion to the weights. The fuel economy of the Diesel engine, however, makes it the more desirable type.

The development of the Diesel engine until recent years has been chiefly for stationary work and for marine purposes. In the stationary field the prime requisite has been continuity of service and long life. Such engines have been extremely large and of slow speed, weighing from 150 to 300 pounds per horsepower. The marine engine, however, must necessarily be built to conserve space and weight, but where direct-connected to the propeller must be of relatively slow speed. These engines, then, approach railway needs. For the propulsion of rail vehicles weight and space are the prime requisites and the speed of the engine is of secondary importance except as it may affect the space and weight, for, in general, the higher the speed the greater the horsepower and the lower the weight and space.

In recent years there has been a rather consistent effort on the part of various Diesel engine designers to produce an engine to meet rail propulsion requirements. The most noteworthy of these is the four-stroke-cycle, solid-injection engine built by the Wm. Beardmore & Co., Ltd., of Glasgow, Scotland, and of which there are nine in successful operation on rail cars of the Canadian National Railways. This engine is a modification of an aircraft engine developed for the British Admiralty. It compares very favorably in size and weight with the modern gasoline engine, as it weighs but 16 pounds per brake horsepower.

The so-called "full Diesel" uses high pressure air for the purposes of fuel injection. This pressure air at 800 to 1,000 pounds pressure per square inch insures proper atomization of the fuel if the injection nozzle is properly designed. The air compressor for this high pressure air, however, involves some complication, and the solid injection system has been developed to introduce atomized fuel into the cylinder without the use of pressure air. In this system the apertures of the nozzle are very

small and the fuel is subjected to very high mechanical pressure to vaporize it through the small openings.

In such a development as is now going on it is only natural that engines take varied forms according to the ideas of the designers, and it will probably be years before the economically correct principles are generally accepted and designs standardized as they have been in the gasoline engine. Today there are full Diesels, solid injection engines, and semi-Diesels; there are two-stroke-cycle engines and four-stroke-cycle engines; there are simple, compound, and double-acting engines; port scavenged engines and engines scavenged through valves in the cylinder head; cylinders in line and "V" engines; vertical cylinders and horizontal cylinders; single crankshafts and parallel crankshafts. Each individual design has some points of advantage.

We look forward with a great deal of interest to the application of the Diesel type of engine to rail car work. We also expect that engine sizes and weights will continue to decrease until eventually they may be applied to highway vehicles.

Cost of Operation

You are undoubtedly interested in the economies of the rail car for light passenger traffic or branch line service. The steam train for this service operates at a cost per mile between \$0.75 and \$1.50 with an average of probably \$0.90. Available data indicate that the comparative figures for rail cars using gasoline engines are from \$0.25 to \$0.45 while Diesel engined cars will operate at figures approximately 25 to 35 percent lower than the latter. On account of the lack of accurate maintenance data on the Diesel engine time will be required to verify this estimate, although there is every reason to believe that the maintenance of a Diesel engine in railway service should be lower than that of the gasoline engine. In addition to this reduction in operating expense, due to the use of the self-propelled car, there is a reduction of attendant facilities.

One of the problems confronting the railroad executive is the reduction of operating expenses of the "thin" lines. The self-propelled car has proven that it will effectually do this. But why be content with a reduction of expenses alone when it appears that this type of car can be used as a tool to regain some of the traffic now being carried by automobile and bus.

I have had some opportunity of traveling through Iowa, and have talked with a number of local travelling men. I find that they have difficulty in "jumping" from town to town due to limited train service, and are almost forced to the use of their own cars in order to cover their territory thoroughly, even though the actual cost per mile is higher and driving is tiresome and disagreeable, especially in wet or cold weather. An analysis of this problem (admittedly without complete data) would indicate that wider use of the rail car with more frequent service would still permit large reductions in operating expenses and would result in considerable increase in rail travel. To accomplish this effectively, however, will require co-operation of the various railroads, as the desired result would not be attained if only one or two roads were to adopt this policy.

Internal Combustion Engines for Locomotives

The application of gasoline and Diesel engines to locomotive purposes is in its infancy. As in the rail car, the weight and space requirements of the Diesel engine has limited its application to locomotives where real blocks of power have been required. Gasoline engines have been available for the smaller weights of locomotives and

have been used rather extensively in industrial work. For continuous heavy duty, however, the fuel costs have been a severe handicap.

We have recently seen the application of both gasoline and Diesel engines to switching locomotives. The available horsepower per ton of locomotive weight on drivers has been so low that the locomotives are not as serviceable as the steam locomotive but are more in the nature of an experiment, or rather a step in development of the ultimate. Thus, the Ingersoll-Rand Diesel locomotive has 5 horsepower per ton for the 60-ton size and 6 horsepower per ton for the 100-ton size. The Brill-Westinghouse 75-ton switcher, using 500 horsepower in gasoline engines, has 6.66 horsepower per ton. The Baldwin-Westinghouse 1,000 horsepower Diesel has 11 horsepower per ton on drivers. Designs are now under way by various manufacturers for locomotives having as high as 8 to 14 horsepower per ton weight on drivers. An electric locomotive can easily develop 25 to 35 horsepower per ton. Steam locomotives will develop from 18 to 23 or 24. These figures are merely used as a comparison of the "liveliness" of the various types of units. It has been demonstrated in service that the low-powered Diesel units with the electrical transmission can develop more than enough tractive effort to slip the wheels and thus can haul immense trains, but this maximum tractive effort limits the speed to a very low value on account of the limited horsepower. As an example, a 60-ton locomotive equipped with a 300 horsepower engine developing 36,000 pounds tractive effort, corresponding to 30 percent adhesion, can attain a speed of less than two miles per hour. In order to increase the speed it is necessary to reduce the tractive effort on account of the limited power available. Thus, the time required to switch a given tonnage is relatively high as compared with steam switching.

Locomotive manufacturers have realized the necessity of light weight high speed Diesel engines and have been instrumental in impressing this need on the engine builders. Every pound of unnecessary weight and every extra foot of room required for the engine and transmission means weight in the locomotive structure which might be eliminated. With limited axle loadings this means extra axles in some cases, so that the total locomotive weight may go up much faster than the increase in engine weight and size. The converse is also true to some extent. It may be forecast that the ultimate switching locomotive will weigh in the neighborhood of 100 tons, all on drivers, and will have at least 1,000 horsepower in engines, while the ultimate passenger or freight locomotive will weigh in the neighborhood of 250 tons, with 80 percent of this weight on drivers, and equipped with about 3,000 horsepower in engines. A universal type of locomotive may be used for either freight or passenger service by a change in the gearing ratio between the propulsion motors and the wheels.

One of the big problems of the self-propelled car or locomotive is that of providing power for the auxiliaries, such as radiator fans, air compressors, battery charging apparatus, and engine starting. Direct connection of fans and compressors to the engine is not often desirable or feasible. With the electrical system of power transmission electrical energy is available for these auxiliaries, but even then the problems are not all solved. In order to use the engine power most efficiently it is necessary to provide for varying the voltage of the main generator which is coupled directly to the engine. The operation of auxiliaries from this varying voltage is not entirely satisfactory. The exciter for the excitation of the main generator is also of varying voltage, this characteristic being inherently necessary for the proper regulation of

the engine loading. The solution of this problem in the case of the locomotive seems to be in the provision of an auxiliary generator having constant voltage characteristics, but with the rail car the addition of the third rotating machine is undesirable.

I do not wish to leave with you the idea that the gasoline or Diesel rail car and the Diesel locomotive are going to supplant the steam locomotive in the immediate future. Undoubtedly the rail car is developed sufficiently at this time to become the economical substitute for the steam locomotive in several classes of service. Locomotives equipped with internal combustion engines, however, have proven their desirability in but one class of service—that of light switching duty. As the ratio of cost between the Diesel locomotive and the steam locomotive is now quite considerable, the railroads will require conclusive demonstrations of the economies of the new form of motive power before they buy in quantities, and it will be many years before the intensely interesting and spectacular steam locomotive vanishes from our sight.

"All-Day Lunch Cars" on the Southern Pacific

THE Southern Pacific now furnishes food and eating facilities in day cars on through trains, in California and adjacent states, to the extent of over 5000 train-miles daily, and the service is being extended. Twenty-four cars thus fitted up are now in



Lunching in the Day Coach

service, and lunch facilities are being installed in 13 new coaches now being built at the Sacramento shops. The company evidently finds the innovation very satisfactory, and it is proposed to put these cars on all through trains which have day coaches or tourist cars.

This enterprise was begun by the establishment of a coffee urn in a single car, with a man in charge to furnish

coffee and sandwiches. The experiment quickly proved successful and as the service has been extended numerous additions and improvements have been made.

The "cabin" in which the food is prepared is completely fitted up with the conveniences usually found in a dining car, but on a smaller scale. These include an oven, gas plate, ice box, coffee urns, etc. The table, in the shape of a shelf, is clamped to the seat in front of that occupied by the diners, and this convenience is available at any



Southern Pacific "All-Day Lunch"

point throughout the length of the car. Passengers are also served at the lunch counter.

The cars now being fitted are to have each two standard dining-car tables, accommodating four persons each.

This food service is available for passengers who have their own lunch baskets, enabling them to supplement their basket provisions with hot coffee or other drinks. Mothers traveling with children can supply themselves with fresh milk, eggs and toast.

A sample bill of fare looks a good deal like that of a dining car and, the overhead expense being low, as compared with a dining car, it is intended to keep the prices at a moderate level.

From a sample menu, we copy some of the principal items:

Jellies, 20; Orange, Apple or Banana, 10; Clam bouillon (Cup), 15; Dry Cereals with Cream, 25; Corned Beef Hash, 30; Prepared Meats, 50; Boiled Eggs, (1) 15, (2) 25; Bread and Butter, 10; Pie (per cut) 10; Doughnuts, (2), 10; Coffee (cup) 10; Milk (half pint bottle), 15.

Sandwiches are freshly made for each customer. Warm foods are served hot from the fire, and suitable refrigeration is provided for milk and other perishable articles. The attendant in charge of the car is specially trained for the service.

These cars are now run on the following trains:

Train	Distance
Train 6—Oakland, Cal., to Sacramento.....	89 miles
Train 14—Sacramento, Cal., to Portland, Ore.....	682 miles
Train 15—Portland to Oakland.....	767 miles
Train 13—Portland to Oakland.....	767 miles
Train 16—Oakland to Portland.....	767 miles
Trains 38-24-10—Oakland, Cal., to Ogden, Utah.....	778 miles
Trains 23-9—Ogden to Oakland.....	778 miles
Daylight Limited—San Francisco and Los Angeles.....	471 miles
Coos Bay Limited—Portland and Marshfield (Oregon).....	121 miles

Kindly, Courteous Service

THE above title is the *motif*—if an artist's term is allowable—of a series of "Service Bulletins" recently issued by C. E. Johnston, vice president of the Kansas City Southern, to stimulate interest on the part of officers and employees in rendering "up-to-the-minute service" to the road's patrons. Each of the nine bulletins carries one or more expressions of the idea set forth thus—

KANAS CITY SOUTHERN INDLY COURTEOUS SERVICE

or in some other equally striking embodiment of the same idea. The bulletins were issued to the officers and employees at intervals of two weeks; and, following the ninth bulletin, a circular, in similar form, was issued inviting each recipient to tell the general manager what he thinks of the bulletins. The circular contains at the bottom a printed form for signature, expressing the employee's intention to endeavor to give to the public the kind of service which has been under discussion.

The circulars were printed in display type on colored sheets, 8½ in. by 11 in. Each one is signed by C. E. Johnston, vice president and general manager. Bearing in mind that in our reproduction we have reduced the size of the display and have condensed or abridged the text quite considerably; and that the originals were on colored paper, the reader can get a fair idea of the series from the excerpts printed below.

Bulletin No. 3

Exterminate Your Enemies.—The worst enemies all human beings seem to have, in some degree at least, are Grouchiness, Selfishness, Laziness, Indifference, Carelessness, and so on. We all recognize them as enemies, because these traits never helped any man and always do harm. So long as they hang around the place there is bound to be discord.

When they are put out of business, their places are immediately taken by Cheerfulness, Unselfishness, Activity, Pep, and a host of friends.

In dealing with the public, we can't afford to have enemies—we need all the friendships we can create.

Number Four

"You're It."—People judge the company by the treatment they receive from the agent, the conductor, the clerk, they deal with. In other words, "You're It."

You are the Company so far as the public is concerned.

Service is what our patrons pay for and service is what they are entitled to. Not grudging service, not grouchy service, not half-way service—we all know this won't do. We all know this isn't service at all. We all know that the public is entitled to efficient service plus. That *plus* is the important thing. It is—

Interested Service
Intelligent Service
Enthusiastic Service
Smiling Service

PLEASE REMEMBER **K** for **Kindly** **C** for **Courteous** **S** for **Service**

Number Five

Telephone Etiquette.—A large part of our business is transacted over the phone. Smiling service can be rendered over the telephone as easily as face to face. Grouchiness over the telephone is a relic of the dark ages.

Another thing—nothing is more exasperating to a patron than to be told, "I don't know, call so-and-so." The thing to do is to say, "So-and-so can tell you all about that—hold on and I'll get him for you," or, "I'll have him call you."

Where our company has a private exchange never ask the operator to "get" a patron for you and then call you to the phone. If any waiting is to be done, do it yourself. Don't make the patron wait. Go out of your way to please our patrons

over the phone. They deserve it. They deserve the same Kindly, Courteous, Service over the phone as you give them face to face.

Number Six

Static!!—Usually worse in summer than in winter—probably because there's more hot air in the summertime. All the bragging, and all the hot air that may be peddled about Service, is merely static. The real thing the patron wants is *Service!* And that, also, is what he is going to get. If he doesn't get it here he will go elsewhere for it. Booster clubs are all right—sometimes. But boosting must be backed by Service. An ounce of service is worth a ton of static—boosting without service.

Number Seven

Letter Writing.—What sort of an impression do your letters leave with the public? Are you sure they always say what you mean? Are you sure there is no sarcasm in them, no sting, no abuse? Do you feel they always promote friendship—never enmity? How much difference one little word will sometimes make in a letter! What an art it really is to reflect Smiling Service in a letter! We owe it to ourselves to do our best in this respect. It costs nothing, but the returns are many-fold.

It is only another opportunity to give to the public K. C. S. Service—

Kindly Courteous Service

Number Eight

Cobwebs.—Wide-awake merchants hate cobwebs. Pep and cobwebs don't mix. Many men have cobwebby minds;—inactive minds, unenthusiastic minds, minds that are in a rut.

Cobwebby minds are reflected in the surroundings—dirty windows, dirty floors, untidy work rooms, disorganized working forces. Activity is the first requisite of railroad service. Cobwebby minds and railroad service can't get along together.

Let's get out the broom and clean house. The best place to start is in our own minds. Alert, active, cheerful minds produce bright and shining surroundings; and they produce satisfied patrons and lasting friendships.

Number Nine

KANSAS CITY SOUTHERN No. 9 SERVICE BULLETIN

"Do unto others"—

EVERY legitimate business must have for its basis the idea of Service.

The Kansas City Southern is in business to serve the public in the communities through which it operates. At the bottom of all true service is the Golden Rule. Efficiency of course, is absolutely essential. But efficiency must be supported by intelligent interest, courteous demeanor, a friendly desire to render further service; otherwise there is something vital lacking.

Putting ourselves in the place of the other fellow is a mighty good policy to follow in our dealings with the public. It ought not to be particularly difficult to do this. In fact, it ought to become second nature to every employee whose duties require him to deal with the public. The Golden Rule always has been and still is workable.

In giving our patrons Kindly, Courteous Service, we are making it workable on the Kansas City Southern and not only satisfying our patrons, but ourselves as well.

C. E. JOHNSTON,
Vice President and General Manager.

Always **KINDLY**
COURTEOUS
SERVICE

General News Department

The shops of the Savannah & Statesboro, at Statesboro, Ga., were destroyed by fire on February 6; estimated loss, including damage to four locomotives and one coach, \$25,000.

The Interstate Commerce Commission has denied a petition of the Louisville & Nashville that it be relieved of complying with the second automatic train control order of the commission until it has had time to determine the results of its first installation, but has postponed the effective date of the order from February 1 to July 18.

A. P. Prendergast, mechanical superintendent of the Texas & Pacific Railway, was designated as mechanical engineer of that road, through an unfortunate typographical error in the advertisement of the Superheater Company on the front cover page of the *Railway Age* for February 6. We present our sincere apologies to Mr. Prendergast.

Five hours, 24 minutes, from Chicago, Ill. to Hadley Field, N. J. (near New Brunswick) 726 miles, was the time, exclusive of stops, made by the Chicago-New York Air Mail on the night of January 28. Pilots changed at Cleveland. The plane was helped by a high west wind all the way. It left Maywood Field, Chicago at 7:41 p.m. Central time, and arrived at Hadley Field, at 2:45 a.m., Eastern time.

Louis W. Baldwin, president of the Missouri Pacific, will be the principal speaker at the annual meeting of the Safety Section, American Railway Association, which will be held at the Hotel Statler, St. Louis, Mo., April 27, 28 and 29. The program will deal chiefly with the "All the Year—Every Year" Safety Campaign; also, the Careful Crossing Campaign for 1926, which will extend from June 1, 1926, to September 30.

N. Y. C. Electrifies Yonkers Branch

The New York Central on February 8 opened to electric operation the branch of its Putnam division from Sedgwick avenue station, New York City, to Getty Square station, Yonkers (7 miles). The line is largely devoted to suburban passenger traffic and multiple unit equipment is used.

The beginning of electric operation was attended by appropriate ceremonies in which railroad and municipal officers took part.

Rutland Seeks to Operate Buses

The Rutland Railroad has applied to the Public Service Commission of New York for authority to operate buses in lieu of passenger train service between Bennington, Vt., and Chatham, N. Y. Service is now provided by a mixed train operating in both directions daily. The railroad asserts that if allowed to handle the passengers by bus, freight service could be taken care of by one train operating in only one direction each day, effecting a considerable saving.

C. N. R. Buys Coal to Relieve Distress

Owing to labor difficulties and to a slack demand the coal mines of Cape Breton, Nova Scotia, have in some cases had to close down, and last week Conservative members from the Maritime provinces occupied almost an entire day in the Canadian House of Commons discussing means by which the mines could be given additional business and the miners more work. Late in the day's debate Charles Stewart, Minister of Mines, announced that the Canadian National would take an additional 120,000 tons of bituminous to be banked until navigation on the St. Lawrence river opened next spring. Occasion was taken by many of the Maritime members to deliver a general denunciation of the Canadian National. On the following day William Duff, a Liberal member of the House from Nova Scotia, made a strong defense of the C. N. R. and ridiculed the idea that whenever distress of any

kind developed in the Maritimes it must be relieved by the Canadian National giving an order for a certain commodity, whether or not that railway needed it.

I. C. C. Ends Sprague Hearings

Hearings before Commissioner McManamy and Examiner Mullen of the Interstate Commerce Commission on the complaint of the Sprague Safety Control & Signal Corporation against the New York Central and the General Railway Signal Company were concluded on February 6, after several witnesses on behalf of the complainant had given technical testimony in support of the claim that the G. R. S. automatic train control device does not meet the commission's requirements.

Vote on Interchange and Car Service Rule Changes

Interchange Rule 112 of the American Railway Association, regulating prices to be used in settlement for cars damaged or destroyed, is to remain unchanged, the proposal to modify the rule so as to provide for recognition of the rebuilt car having been voted down.

Car service Rule 4, of the American Railway Association, which provides that empty cars may be short routed at five cents a mile, is the subject of a letter ballot, which has been sent out by Secretary H. J. Forster, proposing that the rate be changed to six cents a mile beginning with April 1.

Burlington Sued for \$1,000,000

W. W. McCallum has filed a suit against the Chicago, Burlington & Quincy asking for \$1,000,000 damages and charging that he was damaged to that amount by being entrapped into representing a client in a personal injury suit planted by the railroad to illustrate how it could be mulcted.

Charges that a Chicago attorney had been instrumental in the filing of a number of fraudulent personal injury suits against railways were made by this railroad in the district court at Chicago on February 13, 1925, during the hearing in a suit for \$40,000 against the road brought by one of its employees who had participated in a trap set for the attorney. In accordance with the plans made by the legal department of the Burlington, their investigator, in the guise of a yard employee, intentionally fell from a freight car and pretended that the fall had brought on paralysis.

The trial resulted favorably to the road on March 30 when Circuit Judge Harry M. Fisher rendered a decision recommending disbarment as a fitting punishment for W. W. McCallum for prosecuting fraudulent personal injury damage suits against the Burlington. McCallum and his brother were found guilty of contempt of court and were fined \$500 each.

Association for Railway Women Organized in Chicago

The Railway Business Women's Association, Chicago, has been organized by women employed by railroads, steamship companies, affiliated committees and the Pullman Company, for the purpose of advancing social, business and intellectual development. Membership is open to all women employed in transportation service. The organization is divided into divisions according to the various railroads, steamship lines and committees, 13 divisions having been organized so far. The association is similar to one already established in the Twin Cities, composed of approximately 1,000 members.

Officers of the association are, president, Miss Cora Nelson, associated with the Western Trunk Line Committee; first vice-president, Miss Nancy C. McKinley, secretary to the freight traffic manager of the Chicago, Rock Island & Pacific; second vice-president, Miss L. J. Noelle, of the Western Trunk Line Committee; third vice-president, Miss D. Oden, who is in charge of women on the Chicago, Burlington & Quincy; recording secretary,

Miss H. Smith, of the Central Freight Association; corresponding secretary, Miss I. Gates, Chicago & North Western; financial secretary, Miss L. Kennedy, New York Central; and treasurer, Mrs. W. G. Brown, Baltimore & Ohio.

Fuel Bill for Eleven Months

The railroad fuel bill for the eleven months ended with November, 1925, was \$300,740,376, as compared with \$324,501,011 for the corresponding period of 1924, according to the Interstate Commerce Commission's monthly statement, covering fuel for road locomotives in freight and passenger train service, charged to operating expenses, for Class I roads, excluding switching and terminal companies. The average cost of coal for the period was \$2.72 per ton, as compared with \$3.05 in 1924, while the average cost of fuel oil per gallon increased from 2.78 cents in 1924 to 3.15 cents in 1925. For the month of November the average cost of coal was \$2.63 and the average cost of fuel oil was 2.92 cents.

Pullman and Railroad Club Incorporated

The Pullman and Railroad Club, Chicago, has been incorporated under the laws of Illinois for the purpose of bringing together those representatives of the various railroads and of the Pullman Company who have business contacts through correspondence, believing that it is considerably easier to do business if the individuals are personally acquainted.

The club was organized five years ago by officers of the Pullman campaign and railroad operating and passenger departments. Requests from railroad officers from outside points who have been guests of the club from time to time asking to have the by-laws changed so that they could become members led to the incorporation. The membership at the present time is 50, and it is planned to increase the number to 200. All active members must be bona fide employees of a common carrier. Officers of the club are: President, E. J. van Esh, car distributor of the Pullman Company; vice-presidents, T. J. Wall, general agent of the Canadian Pacific; G. R. Bierman, assistant general passenger agent of the Union Pacific, Omaha, Neb., and B. E. Dewey, assistant superintendent of car service of the Pullman Company; and secretary-treasurer, B. H. Hamilton, assistant to the superintendent of car service of the Pullman Company.

New Equipment Installed

Class I railroads during 1925 installed in service 128,557 freight cars, according to reports filed by the carriers with the Car Service Division of the American Railway Association. This was a decrease of 27,857 cars under the number installed in 1924 and a decrease of 69,318 cars under the number installed in 1923. Of the total 61,140 were box cars, 48,670 were coal cars and 5,761 were refrigerator cars.

Freight cars installed in service during the month of December totaled 4,620, which included 1,520 box cars, 2,259 coal cars and 255 refrigerator cars.

Freight cars on order on January 1 totaled 40,794, including 21,380 box cars, 15,368 coal cars and 1,781 refrigerator cars. On January 1, 1925, Class I railroads had 55,684 freight cars on order and on January 1, 1924, they had 25,619 on order.

During 1925, Class I railroads placed in service 1,733 locomotives, as compared with 2,246 during 1924 and 4,037 in 1923. The same roads on January 1, 1926, had 471 locomotives on order as compared with 287 on January 1, 1925, and 510 on the same date in 1924. During December, 1925, 129 locomotives were installed in service.

These figures as to freight cars and locomotives include new, rebuilt and leased equipment.

Eighty-Cent Suit Involves Important Question

The Northern Pacific has entered a suit against the United States government in the district court for the district of Minnesota, sitting as a court of claims, which, while it is for but 80 cents, involves differences of possible importance affecting land-grant railways. The 80 cents is the difference between the amount paid by the government and the amount claimed by the railway, for the transportation of a sergeant of the Marine Corps from St. Paul to Seattle, based on a deduction for public land-aided mileage. The route used by the government for the computation,

in accordance with its usual practice, covered the complete land-aided mileage, excluding the Little Falls-Staples and Palmer cut-offs, which were actually used, but which were constructed without land-grant aid, and the railway claims that the land-grant deduction should apply only to the land-grant-aided mileage actually used. A brief filed on behalf of the government by O. R. McGuire, of the general accounting office, says: "If plaintiff can abandon through service on part of its land-grant line, which it was permitted to construct in the first place via 'the most eligible railroad route, as shall be determined by said company,' in favor of shorter cut-offs, and thereby increase the ratio between the non-aided and land-aided parts of its lines, the proportionate ratio in favor of the United States will constantly decrease as the location of the line is shifted and additional cut-offs built until it approximates zero. This is obviously unfair to the government, which, according to some figures, has given plaintiff public lands from which plaintiff has derived moneys in excess of the cost of the road."

Wage Statistics for November

Class I railroads reported a total of 1,788,889 employees in November, 1925, a decrease of 28,149 or 1.5 per cent as compared with the returns for the previous month, according to the Interstate Commerce Commission's monthly compilation of wage statistics. Seasonal reduction in the maintenance of way forces was the principal cause of this drop in employment. The total compensation shows a decrease of \$15,484,696 or 6.0 per cent, due to the reduction in the number of employees coupled with the fact that November had only 24 working days while October had 27. It is noted that the number of employees reported for the month of November, 1925, is almost exactly the same as that reported for the same month in 1924, but, owing to an increase in the number of hours worked per employee, together with an increase in the straight time hourly earnings of 0.6 cents, the total compensation shows an increase of 2.7 per cent.

The number of employees at the middle of the month was as follows:

Group	Nov., 1925	Oct., 1925	Nov., 1924
Executives, officials, and staff assistants....	16,657	72	330
Professional, clerical, and general.....	283,892	915	1,958
Maintenance of way and structures.....	395,301	(d) 30,346	6,009
Maintenance of equipment and stores.....	521,537	1,565	(d) 18,678
Transportation (other than train engines, and yard)	210,886	(d) 1,015	1,770
Transportation (yardmasters, etc.)	24,143	136	(d) 230
Transportation (train and engine service)...	336,473	524	9,007
Total.....	1,788,889	(d) 28,149	166

(d) Decrease.

Southern Not Affected by Wage

Demands of Conductors and Trainmen

The Southern Railway System has not been served with the new wage demands which were served on the railways generally on February 2 by the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, because the dispatchers and engine and train service employees on that system are working under a three-year contract entered into in March, 1924, which embraces a bonus plan under which the schedules may not be reopened until March 1, 1927. The wage agreements made in 1924 provided for an increase of wages of approximately 5 per cent in the base rates for three years and an opportunity to earn added compensation through increased efficiency by helping to reduce the class of expenditures which are most directly influenced by the efforts of dispatchers, engine, and train service employees. The ratio of the total of 17 accounts to the total operating revenues was ascertained for the year 1923 to be 21.42 per cent, which is known as the test ratio. In February, 1925, similar ratio was ascertained for 1924 and found to be 20.24 per cent. The agreement provided that if, notwithstanding increases in compensation, the ratio for 1924 was not in excess of the test ratio, then, in the month of February, 1926, to each employee affected would, as a bonus or added compensation, receive 1½ per cent of his total compensation for the year 1925. The employees earned the bonus for that year. Similarly, the ratio for 1925 was ascertained to be 19.99, such a ratio having been produced after charging into expenses the bonus or added payment, and as the ratio was not in excess of the test ratio, under the plan a bonus of 3 per cent will be payable in February, 1927.

If the ratio had increased so as to exceed the test ratio such excess would have been deducted from the bonus payment, but it was provided that in no case should the increase in ratio do more than offset the contemplated bonus payment.

The Canadian Roads for 11 Months, 1925

Canadian National Railways gross revenues for the month of November, 1925, were greater than those of November, 1924, by \$3,072,775 and exceeded those of November, 1923, by \$365,177. Operating expenses were 5.4 per cent over those of 1924 but were 7.5 per cent under those of November, 1923. Net revenues were \$5,620,743 and, with the exception of those for last October, were the largest earned since the system was consolidated. Freight traffic showed an increase of 23.4 per cent over November, 1924, and freight receipts increased \$2,705,674, or 19.3 per cent. Passenger traffic also was heavier by 9.2 per cent. The average freight train loading was increased by 44.7 net tons and 1.7 cars and the earnings per train mile were increased 19 cents with the average receipts per revenue ton mile reduced from .865 cent to .836 cent. The Duluth, Winnipeg & Pacific and the Grand Trunk Western earned substantially increased net revenues but the New England lines showed an operating deficit of \$14,108, as against a net revenue of \$15,802 in November, 1924. For the entire system the net revenues were \$2,716,180 ahead of November, 1924. For the first eleven months gross revenues of both Canadian and United States lines were greater in 1925 and operating expenses were less which increased the cumulative net operating revenues by \$12,432,236.

Following is the showing of the Canadian National for November, 1925, and for the eleven months ended November 30, 1925, with comparisons:

CANADIAN NATIONAL SYSTEM			
(Steam Lines in Canada and United States—For the Month of November, 1925)			
	1925	1924	
Operating revenues	\$24,675,451.00	\$20,946,123.00	
Operating expenses	18,244,966.81	17,231,818.83	
Net operating revenues	6,430,484.19	3,714,304.17	
Operating income	5,864,267.90	3,194,816.36	
SUMMARY FOR ELEVEN MONTHS ENDED NOVEMBER 30			
	1925	1924	
Operating revenues—Canadian lines.....	\$187,788,082.16	\$184,784,296.66	
United States Lines.....	33,331,449.84	31,487,149.34	
Total	\$221,119,532.00	\$216,271,446.00	
Operating expenses—Canadian lines.....	\$168,083,749.85	\$175,174,272.60	
United States lines.....	26,119,577.31	26,613,205.37	
Total	\$194,203,327.16	\$201,787,477.97	
Net operating revenues—Canadian lines..	\$19,704,332.31	\$9,610,024.06	
United States Lines.....	7,211,872.53	4,873,943.97	
Total	\$26,916,204.84	\$14,483,968.03	
Operating income—Canadian lines.....	\$20,022,926.04	\$9,834,450.09	
United States lines.....	2,211,099.37	Dr. 511,195.04	
Total	\$22,234,025.41	\$9,323,255.05	

The Canadian Pacific's freight traffic was heavier in November than during October, despite the one day less, and freight revenues were also greater. Compared with November, 1924, the increase in the revenue ton miles was 5.3 per cent and in freight revenues, \$1,180,072, or 8.6 per cent. Total revenues were greater by \$1,226,257, or 6.8 per cent and net revenues were increased by \$380,103. Maintenance of way and structures showed little change, maintenance of equipment was increased by \$512,583, or 21.3 per cent, and transportation expenses were increased by \$252,763, or 4 per cent. The average train load dropped from 700.6 net tons to 642.4 net tons and the average load per car from 31.2 tons to 28.5 tons. For the eleven months January-November, gross revenues were less in 1925 by \$2,332,407, but operating expenses were reduced by \$5,237,999 which increased the net revenues by \$2,905,592 and operating income by \$1,830,043. Total operating revenues for November were \$19,170,013, as compared with \$17,943,756 in November, 1924; total operating expenses were \$12,667,658, as compared with \$11,821,504; net operating revenue \$6,502,355, as compared with \$6,122,251; and operating income

\$6,248,034, as compared with \$6,029,881. For the eleven months ended in November the gross operating revenues were \$162,936,276, as compared with \$165,268,683; operating expenses \$127,047,331, as compared with \$132,285,331; net operating revenues \$35,888,944, as compared with \$32,983,352, and operating income \$35,327,983, as compared with \$33,497,940.

The net showing of the Canadian Pacific for the 12 months of 1925 was the best since 1917, the total being \$40,154,775. On the basis last year's fixed charges, pension fund and preferred dividends, amounting to about \$18,500,000, this will leave well over the 7 per cent on common stock usually drawn from net profits from railway operations, the other 3 per cent being taken from special income account. Gross earnings for December, 1925, were the best of any December since 1917, and probably the second highest in the history of the company, being shown at \$19,818,544, an increase of \$4,128,373 over December, 1924. Working expenses were up only \$3,030,882 to \$14,991,752, leaving net for the month at \$4,826,792, an increase of \$1,087,490.

Railway Revenues and Expenses for 1925

Class I railroads in 1925 earned on their property investment a return of 4.83 per cent, according to the compilation made by the Bureau of Railway Economics, based on reports from 191 roads representing a total mileage of 237,048 miles.

The net railway operating income for the year totaled \$1,136,973,477, as compared with \$986,744,996 in 1924. In total amount this was the greatest on record, although because of increased investment the rate of return was less than in several previous years.

The increase in the net income in 1925 over that of the preceding year was due not only to the fact that the freight traffic handled in 1925 was greater than that of the preceding year, but also to increased efficiency and economy in operation, largely the result of enormous capital expenditures made during the last four years. While operating revenues in 1925 were approximately three per cent above those of the year before, there was an increase of only one-half of one per cent in operating expenses, although there was an increase of approximately six per cent in the amount of freight traffic handled.

Operating revenues in 1925 amounted to \$6,186,608,566, as compared with \$5,987,662,225 in 1924. Operating expenses in 1925 totaled \$4,583,246,375, compared with \$4,559,764,310 in 1924.

Out of every dollar of revenue earned in 1925, 74.08 cents went to meet the costs of operation, exclusive of taxes. This ratio compares with 76.15 in 1924 and 77.75 in 1923. Maintenance expenditures in 1925 amounted to \$2,093,617,038, an increase of approximately \$20,000,000 or one per cent over those of 1924. Expenditures for maintenance of equipment alone amounted to \$1,268,724,179, a decrease of \$1,987,529 or one-tenth of one per cent. Maintenance of way expenditures amounted to \$824,892,859, an increase of \$22,224,000 or 2.7 per cent.

During 1925, Class I railroads paid out \$363,262,000 in federal, state and local taxes. This was an increase of \$18,717,000 or 5.4 per cent over the amount expended for such purposes in 1924.

Fourteen Class I railroads operated at a loss during the year, of which five were in the Eastern district, one in the Southern district and eight in the Western district. In 1924, twenty had operating deficits, of which ten were in the Eastern and ten in the Western district.

Class I railroads in the Eastern district had a net railway operating income in 1925 amounting to \$555,023,466, which was a return of 5.20 per cent on their property investment. This net income was an increase of \$88,814,844 over that of 1924. Total operating revenues of the Class I railroads in the Eastern district for the year amounted to \$3,057,482,022, while operating expenses amounted to \$2,292,660,605. The revenues increased 3.7 per cent over 1924 and the expenses, six-tenths of one per cent.

In the Southern district, Class I roads during the year had a net railway operating income of \$167,555,339, which was a return of 5.91 per cent on their property investment. This was an increase of \$25,001,533 over 1924. Operating revenues of the Southern carriers amounted to \$846,577,200, an increase of 7.4 per cent, while operating expenses amounted to \$616,491,666, an increase of 3.6 per cent.

Class I railroads in the Western district during the year 1925 had a net railway operating income of \$414,394,672, which was a return of 4.13 per cent on their property investment. This was an increase of \$36,412,104. Operating revenues of the Class I

roads in the Western district for the year amounted to \$2,282,549,344, an increase of 1.3 per cent, while operating expenses amounted to \$1,674,094,104, a decrease of seven-tenths of one per cent.

For the month of December, Class I railroads of the United States had a net railway operating income amounting to \$94,656,512, which was at the rate of return of 4.80 per cent on property investment. Operating revenues of the Class I roads in December totaled \$524,007,383, an increase of 3.7 per cent over December, 1924, while operating expenses totaled \$389,640,876, or an increase of 2.1 per cent.

Railroads in the Eastern district had a net railway operating income in December amounting to \$41,937,505, compared with \$39,319,030 during the same month of 1924. In the Southern district, Class I railroads in December had a net railway operating income of \$15,621,247, compared with \$15,034,033 in December, 1924, while in the Western district the net amounted to \$37,097,760 compared with \$32,368,938 for the same month of 1924.

Pennsylvania Seeks to Operate Buses

F. J. Scarr, supervisor of motor service of the Pennsylvania on February 10 made application to the Public Service Commission of Pennsylvania, sitting in Pittsburgh, for a certificate of public convenience and necessity, permitting him to operate in his own name, but on behalf of the Pennsylvania Railroad, a bus line between the boroughs of Washington and Waynesburg, in southwestern Pennsylvania. Transportation service between these points has for the last 48 years been furnished by the Washington & Waynesburg Railroad, a branch line and subsidiary of the Pennsylvania Railroad.

With the increasing use of automobiles, patronage of the passenger trains on this branch has declined and it has been found necessary to curtail the service materially. It is now intended to place in operation a fast bus line which will supplement the present train service and provide a more frequent and faster service than was rendered by the former train schedules. The proposed motor service will also include provisions for the handling of mail, baggage and express.

The distance between Washington and Waynesburg by rail is 28 miles and by the highway 22 miles. The present running time by rail is about one hour and forty minutes. The contemplated bus schedules will provide a run of one hour in each direction. Through tickets will be honored on the buses precisely as on the trains, and the through checking of baggage will be similarly handled.

In order to be in a position to handle this and similar situations, steps will also shortly be taken to obtain a charter in the Commonwealth of Pennsylvania for a corporation to be known as the "Pennsylvania General Transit Company." It will be a subsidiary of the Pennsylvania Railroad, which will own all the capital stock.

The incorporators will all be officers of the Pennsylvania Railroad, namely: A. J. County, vice-president; M. C. Kennedy, vice-president; G. J. Adams, chief of corporate work; C. M. South, assistant chief of corporate work; and F. J. Scarr, supervisor of motor service.

The necessary legal public notice of the intention to form this company will be given through newspaper advertisements within the next few weeks. The formal application for the charter will be placed in the hands of the governor of the Commonwealth the latter part of March.

The charter as applied for will cover the right to operate motor and similar conveyances for the transportation of both passengers and freight in those counties of Pennsylvania traversed by the lines of the railroad.

When the charter for the proposed Pennsylvania General Transit Company is obtained, Mr. Scarr will, with the consent of the Public Service Commission, transfer to the new company the certificate of public convenience and necessity for the operation of the Washington-Waynesburg bus line. In the meantime, the granting of the certificate to Mr. Scarr will permit the immediate inauguration of the bus service and the accompanying improvement in the schedules.

It is not the plan of the Pennsylvania Railroad either directly or indirectly to enter the general business of transportation by motor bus or motor truck, but to do so only when such auxiliary operation is absolutely necessary to protect existing railroad business or may result in greater economy or public convenience in connection with railroad operations.

Traffic News

The "Connecting Link" was the nickname chosen by the Chicago & Eastern Illinois from the names submitted in a contest for a nickname which can also be used as a trademark. The contest was open to the public and \$100 was offered as the first prize and \$50 as the second. The "Middle Link" was considered the next best selection.

Beginning with March 1, the Southern and the Atlantic Coast Line will establish a new through train between Asheville, N. C., and Jacksonville, Fla., via Savannah. Leave Asheville, 8 p. m. arrive Jacksonville next forenoon at 11:30; leave Jacksonville, 2:10 p. m. arrive Asheville 7 a. m. Many citizens of Florida have summer homes in western North Carolina.

"Apple Survey of the United States and Canada" is the title of a pamphlet of 63 pages which has been issued by the Department of Agricultural Relations, of the New York Central Lines; an abstract of the results of a thorough study of natural and commercial conditions in the apple growing regions throughout the country. A striking feature is a map of the United States showing graphically the acreage of apple orchards in each district.

A brass band and other festive features were principal items in a celebration held at Yonkers, N. Y., on February 8, on the arrival of the first regular electric train in that city from New York over the Yonkers branch of the Putnam Division of the New York Central. This line, from Sedgwick Avenue, New York City, to Yonkers, eight miles, has been electrified in compliance with the law forbidding the use of steam locomotives within New York City.

The hearing before the Interstate Commerce Commission on a revision of the percentage of the freight charges between points north and south of the Missouri river in the western classification territory which was begun in Chicago last fall was resumed at Galveston, Tex., on February 3. At the opening of the hearing at Galveston figures on tonnage and ton miles handled by the western railroad lines were presented. Among those testifying were B. F. Parsons, general freight agent of the Chicago Great Western and J. E. Hutchison, vice-president of the St. Louis-San Francisco.

Through freight service between East St. Louis, Ill., and New Orleans, La., has been established by the St. Louis-Southwestern, the Chicago, Rock Island & Pacific, and the Southern Pacific, following the granting of fourth section relief by the Interstate Commerce Commission. Freight is handled by the St. Louis-Southwestern between East St. Louis and Fordyce, Ark., by the Chicago, Rock Island & Pacific between Fordyce and Alexandria, La., and by the Southern Pacific between Alexandria and New Orleans. This service affords fourth-morning delivery, the trains leaving East St. Louis at 10:20 p. m. Returning they leave New Orleans at 12:30 a. m. and arrive in East St. Louis at 5:30 a. m. the fourth morning. Simultaneously through freight service has been established between Memphis, Tenn., and New Orleans.

The New Orleans rate relationship case was opened before the Interstate Commerce Commission at New Orleans, La., on February 3, and was devoted to the testimony of Louisiana interests. Huey Long, chairman of the Louisiana Public Service Commission, contended that Galveston does not possess the facilities to handle important classes of import freight and that government action to force traffic in the direction of Galveston would harm American consumers and endanger Latin-American business. J. B. Payne, vice-president of the Texas & Pacific, testified that the total mileage from the midwest points affected to Europe is generally less through New Orleans than Galveston. He questioned the advisability of causing a shipper to pay more for sending his goods over the shorter route through New Orleans. Galveston interests testified at a hearing held at Galveston, Tex., on February 10. A hearing will be held at Ft. Worth, Tex., on February 16 for the convenience of petroleum interests.

Flood Lights for Night Sight-Seers

The Chicago, Milwaukee & St. Paul plans to equip the observation cars on its trans-continental trains with flood lights to enable passengers to enjoy the scenery at night. The first of these lights was used on the observation car of the Olympian Limited, which left Chicago on February 1. The lights are mounted so that they may be shifted at will.

Rock Island Milk and Cream Traffic

The Chicago, Rock Island & Pacific has resumed the transportation of milk and cream in baggage cars, this class of traffic having been handled since 1904 by the express company operating on the railroad. Recent changes in conditions surrounding head-end traffic on passenger trains have rendered it advisable to again engage in this traffic. At present the company will engage only in service local to the Rock Island lines, but will eventually extend the service to interline traffic.

Dominion Board to Hear Argument

on Western Grain Rates

The Canadian Board of Railway Commissioners will meet in Ottawa on February 16 to hear the arguments of representatives of the provinces of Alberta and British Columbia against the manner in which the Canadian National and Canadian Pacific Railways have carried out the Pacific Rates order issued by the Board four months ago. The provinces will contend that the railways have not fully obeyed the order of the Board in the application of Crow's Nest Pass agreement rates on grain west-bound to Vancouver and that thereby Western shippers have been deprived of the full advantage of that order.

Minnesota Roads Indicted in Rate Question

The controversy between the Minnesota Railroad and Warehouse Commission and the Interstate Commerce Commission for the jurisdiction over intrastate freight rates has resulted in the indictment of five railroads by the Hennepin county grand jury. The indictment charged violation of the long and short haul clause of the State rail rate law and unequal preference in freight rates. The roads mentioned are the Northern Pacific, the Minneapolis, St. Paul & Sault Ste. Marie, the Chicago, St. Paul, Minneapolis & Omaha, the Minneapolis & St. Louis, and the Chicago, Milwaukee & St. Paul. Six indictments in all were returned by the grand jury, two separate charges being made against the Northern Pacific, one alleging violation of the long and short haul clause and the other charging a discriminatory rate.

The Northern Pacific, the Chicago, Milwaukee & St. Paul, the Chicago, St. Paul, Minneapolis & Omaha, the Minneapolis & St. Louis, and the Minneapolis, St. Paul & Sault Ste. Marie entered pleas of not guilty to the indictment. The Minneapolis & St. Louis and the Chicago, Milwaukee & St. Paul, now in receivership, questioned the right of the Minnesota Rate Commission to bring the indictments when the railroads are acting under orders from the Interstate Commerce Commission. Trials were set for February 17 at Minneapolis.

Joint Passenger Service Authorized

The Interstate Commerce Commission has approved the proposal of the Northern Pacific and the Minneapolis, St. Paul & Sault Ste. Marie to establish joint passenger-train service between Minneapolis and St. Paul, Minn., and Duluth, Minn., and Superior, Wis., and to divide the earnings therefrom under the terms and conditions of a contract entered into between them on December 24, 1925, to run for three years. The contract provides that the Northern Pacific shall continue to operate its passenger trains between the Twin Cities and the head of the lakes as of December 24; that the Soo shall discontinue its night train in each direction and change the time of departure of its afternoon train in each direction; that the through revenues earned each month shall be divided between them on the percentages which the through revenues of each bore to the total in the combined corresponding months of 1924 and 1925, and that the net savings resulting from the discontinuance of the Soo night trains and the increased cost of hauling additional equipment in other trains

should be estimated and agreed upon and divided equally. A late afternoon non-stop train operated by the Northern Pacific since December 27, 1925, daily in each direction, will also be discontinued. Applicants had estimated a total saving of \$115,000 a year in their operating expenses from the discontinuance of the Soo late night trains, and the Northern Pacific estimates a like saving in its operating expenses from the discontinuance of its recently established late afternoon trains. No opposition to the proposed arrangement was voiced at the hearing.

Ticket Scalping Decreases

The Railway Ticket Protective Bureau, Chicago, in its report for 1925, shows a decrease in the number of passenger tickets scalped and an increase in the co-operation of city governments, hotels and newspapers.

Conditions in San Francisco, Cal., have improved. During an investigation the bureau purchased a ticket from an assistant at a hotel cigar stand and brought about the arrest and prosecution of the scalper who pleaded guilty and received a suspended sentence of 90 days. Monthly tests were made throughout the excursion season in San Francisco to ascertain if any regular scalping business was being conducted. The Trans-Continental Passenger Association's validating agents were supplied with the bureau's circular letters of warning, which were used to answer all suspicious advertisements appearing in any of the newspapers. All newspapers promised to aid the railroads in suppressing ticket scalping, and articles citing the conviction of the scalper were carried in all newspapers.

All advertisements appearing in the newspapers of Los Angeles, Cal., under "Travel Opportunities" or "Auto Trips" are qualified as to methods of travel. It was found that in many cases "female" tickets are still signed with initials only, and frequently presenters of these tickets refuse to sign the name in full or use the prefix "Miss" or "Mrs." It was suggested that where a person refuses to sign in full validating agents write across the contract part of the ticket the words "Lady's ticket" to prevent it from being used by a man.

Although Chicago is free from ticket scalpers' offices, the low-priced week-end excursion rates made during the summer season brought about a resumption of street scalping near stations and some of these tickets have been dealt in at restaurants, shoe shining parlors, barber shops and labor agencies. No former scalpers were detected in these Sunday street scalplings and the railroads kept the stations clear of these individual scalpers. In three instances porters in hotels were detected dealing in return portions of Pacific Coast summer tourist tickets. In two cases the money was refunded and the porters were notified that their dismissal would follow if again found scalping tickets.

At Jacksonville, Fla., and Miami the investigators found no evidence of any organized scalping. The policing upon the premises of the Jacksonville Terminal Company is being left in the hands of the superintendent.

No organized open scalpers' shops are operating in Kansas City, but an investigation showed that employees of low-priced hotels and storekeepers in the vicinity of the Union station are attempting to scalp tickets. The tickets they expect to sell are almost invariably full-tariff rate tickets issued on government request for use of discharged prisoners, either from Leavenworth penitentiary or the disciplinary barracks located at Leavenworth, Kan. These tickets are one-way tickets with a stopover privilege of 10 days, secured by depositing the same with the ticket agent at Kansas City. Railroad counsel advised against the prosecution of scalpers handling these tickets for violation of the federal court injunctions because the tariff rate was paid by the government to carriers for the tickets.

TRAIN AND ENGINE SERVICE EMPLOYEES on the Texas & Pacific who are taking a strike vote, were ordered by the United States Railroad Labor Board on January 6 to take no action until the questions in dispute have been investigated by the board.

CHIEF OPERATING OFFICERS of the western roads met in Chicago on February 4 to discuss the request of their train service employees, through the Brotherhood of Railroad Trainmen and the Order of Railway Conductors, for general wage increases. This application was reported in the *Railway Age* of February 6. No announcement was made as to the action taken by the railway officers at the meeting.

Commission and Court News

State Commissions

An interurban railway which also operates buses has made a complaint to the Public Service Commission of Pennsylvania alleging that rates charged by the Reading for miners' commutation in Schuylkill county are too low.

Permission to operate the bus line of the Eagle Transportation Company from Duluth, Minn., to Hibbing, until further notice, has been granted to the Northland Transportation Company, the bus operating company in which the Great Northern is interested, by the Railroad and Warehouse Commission of Minnesota. The final order on the request of the Eagle Transportation Company for permission to operate buses on this route will not be made until the appeal of another bus line in the vicinity, made when permission to operate was originally given the Eagle company, has been disposed of.

Personnel of Commissions

The Senate committee on interstate commerce has postponed consideration for a time of the confirmation of the appointment of Thomas F. Woodlock as a member of the Interstate Commerce Commission because the Senate has been holding night sessions in an effort to pass the revenue bill at an early date, and it was not expected that there would be time for a while for an executive session which would require debate. An unofficial poll of the committee indicated a vote of nine to eight in favor of confirmation.

Court News

Trackage Agreement Not Binding

on Railroad's Successor

The Circuit Court of Appeals, Sixth Circuit, holds that a contract between two railroad companies for the use of certain trackage does not run with the land nor create any lien upon it, but is merely personal as between the companies; and is not binding on the purchaser at foreclosure sale of the property of one of the companies until adopted by such purchaser.—*Detroit & Toledo Shore Line v. D. T. & I.*, 6 Fed. (2d) 845.

Rates Held Not Violative of Section 4

The federal district court for western Michigan holds that the rail rates established by the Interstate Commerce Commission on naval stores so far as relating to rosin from points south of the Ohio river to Kalamazoo and Grand Rapids are not unjustly discriminatory as against these cities, or violative of the long and short haul clause although the rates from the Gulf ports to Kalamazoo are higher than from the same points to Chicago, and those from Mississippi Valley territory to Grand Rapids higher than those to Milwaukee.—*Western Paper Makers v. U. S.*, 7 Fed. (2d) 164.

Restricted View at Crossings—

Duty of Guest in Automobile

The Circuit Court of Appeals, Third Circuit, holds that the duty of an automobile driver approaching tracks where the view is restricted to stop, look and listen where and when these will be effective, is a positive duty; but where the physical surroundings are such as to raise a question whether stopping, looking and listening would have been effective, the question is for the jury.

That there is a duty resting on a gratuitous passenger or guest in an automobile to exercise ordinary care for his own protection where he has an opportunity to do so, is the law of the three states comprising the third circuit (New Jersey, Pennsylvania and Delaware) and also the federal law of the circuit as announced in prior cases.—*Ryan v. D. L. & W.*, 8 Fed. (2d) 138.

Foreign Railway News

Russia Improves Railways

The Soviet government, it is reported from London, is exerting every effort to improve and extend its railway facilities. New construction work at the rate of 3,000 miles per annum is planned. A total of 450 locomotives is reported to be under construction. Extensive tests are being made with Diesel locomotives and several of various types are under order to be tested and compared. The volume of traffic has reached 86 per cent of the pre-war level and is constantly increasing.

An International Railway Employees' Association

An international organization which aims to serve as a meeting ground for unionized railway employees has been functioning in Europe for the past several years. The organization is known as the International Transport Workers' Federation. Headquarters are at Amsterdam and railway unions representing practically all important European countries are affiliated; the only union on this continent included is the Canadian Brotherhood of Railroad Employees.

Among the purposes of the federation, as set down in its constitution, are the following:

To promote and maintain a strong international organization of transport workers.

To promote their economic and social interests.

To support joint national and international action warranted by circumstances in the "struggle against the exploitation of labor, and to maintain international working class solidarity."

The federation works to attain these objects by the following methods (again according to its constitution):

Maintaining friendly relations between the transport workers' unions in the various countries.

Supporting and promoting the organization of transport workers in those countries where they are not organized or only partly organized.

Publishing one or more journals in the various languages.

Holding international conferences.

Collecting, elaborating and circulating information about wages and working conditions in various countries.

Collecting, elaborating and circulating information concerning legislation and regulations for the protection of life and health of transport employees.

Watching the introduction of labor-saving machinery with the view of protecting the interests of all transport workers who may be affected thereby.

Preserving the rights and interests of affiliated members when they are in other countries and arranging for the transfer of members from organizations in one country to those of another.

Granting moral and financial assistance of organizations engaged in industrial disputes by giving aid to organizations whose funds become exhausted in a prolonged struggle with combined employers and by promoting and supporting sympathetic strikes, passive resistance and boycotts.

Maintaining friendly relations with the International Federation of Trade Unions and the international secretariats of other trades.

To date it is not apparent that the federation has gone so far as to utilize all the methods for obtaining its objects. Further perusal of the constitution of the organization makes it plain that assistance in strikes will not be lightly given, but only when the committee of management of the federation is taken into the plans and kept fully informed of developments even before the strike is called. Another function which the federation assumes is the stimulation of activity against immigration and emigration of "black legs" and strike-breakers and various employment methods believed to be inimical to union strength.

The federation's monthly publication, appearing in English, French, German and Spanish, is a small 16-page affair without advertising. It carries news of developments of importance to the unions in the various countries. Another feature is a department devoted to propaganda in favor of the study of the artificial universal language, Esperanto, as a means of facilitating contact between people of different countries.

In addition to the monthly publication, the federation has published a number of special studies of wages and working conditions on the railways of various countries, a report on automatic couplings, one on conditions in Soviet Russia and various other pamphlets. Conventions are held at least once every two years. The last took place in Bellinzona, Switzerland, in the summer of 1925.

Equipment and Supplies

Locomotives

THE SOUTHERN PACIFIC is now inquiring for 23, 4-10-2 type locomotives. In the *Railway Age* of January 30 this company was reported as contemplating coming into the market for 23 or more three-cylinder locomotives.

THE MODESTA & EMPIRE TRACTION COMPANY, Modesta, Cal., has ordered one Mogul type locomotive from the American Locomotive Company. This locomotive is to have 16 by 24-in. cylinders and a total weight in working order of 88,000 lb.

THE FLORIDA EAST COAST has ordered 6 eight-wheel switching locomotives from the American Locomotive Company. This is an increase of 6 locomotives, a previous order for 6 switching locomotives having been reported in the *Railway Age* of January 16. This company is now inquiring for 23 Mountain type locomotives of heavier type than the 10 Mountain type locomotives previously ordered as was reported in the *Railway Age* of January 16.

Freight Cars

THE GREAT NORTHERN is inquiring for 250 underframes for freight cars.

THE NEW YORK CENTRAL is asking for bids on 500 box cars of 55 tons' capacity.

THE PORT-ALEGRO WORKS are inquiring through the carbuilders for 19 freight cars.

THE SOUTHERN RAILWAY has placed an order for repairs to 500 gondola cars with the Mount Vernon Car Manufacturing Company.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 100 general service cars from the Pullman Car & Manufacturing Corporation.

THE CANADIAN PACIFIC has ordered 235 steel underframe flat cars of 40 tons' capacity, from the Eastern Car Company; 315 freight refrigerator cars from the National Steel Car Corporation, Limited, and 375 composite high side coal cars of the Hart-Otis type, of 75 tons' capacity, from the Canadian Car & Foundry Company.

Passenger Cars

THE CHICAGO & EASTERN ILLINOIS has ordered two dining cars from the Pullman Car & Manufacturing Corporation.

THE CANADIAN PACIFIC has ordered 54 sleeping car frames, 9 compartment sleeping car frames and 11 observation compartment car frames from the Canadian Car & Foundry Company; 24 first class coach frames, 8 buffet parlor car frames and 10 tourist car frames from the National Steel Car Corporation, Limited. The above equipment includes everything except the interior finish to the cars and the final painting which will be carried out in the railroad company's Angus shops. A contract has also been let for 50 express refrigerator cars to the Canadian Car & Foundry Company and for 11 combination baggage and express cars, to the National Steel Car Corporation, Limited.

Machinery and Tools

THE CENTRAL VERMONT has ordered an Allen jaw riveter from Manning, Maxwell & Moore, Inc.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one 20-ton, 26-ft. span one-motor stationary transfer crane.

ARMOUR & Co. has given an order for a 48-in., 200-ton car wheel press to the Niles-Bement-Pond Company.

THE COLORADO FUEL & IRON Co. has ordered four National semi-automatic nut boring machines, from Manning, Maxwell & Moore, Inc.

Iron and Steel

THE MISSOURI-KANSAS-TEXAS has ordered 1,200 tons of structural steel for its 1926 bridge program from the Kansas City Bridge Company.

THE ST. LOUIS SOUTHWESTERN has ordered 10,000 tons of rail from the Illinois Steel Company, and 3,200 tons from the Bethlehem Steel Company.

Signaling

THE PENNSYLVANIA RAILROAD has ordered from the Union Switch & Signal Company an interlocked circuit controller, 11 levers for installation at Seaford, Del.; also apparatus for an electro-mechanical machine for Alton, Ohio.

THE ATLANTA, BIRMINGHAM & ATLANTIC has ordered from the Union Switch & Signal Company material for an interlocking at Manchester, Ga. Style "S" semaphore signals and electric dwarf signals are being used with a low voltage Style "M" switch and lock movement remotely controlled from the Manchester Station.



View of Casting Dock at the Hayne, S. C., Shop of the Southern Railway

Supply Trade News

The Celite Products Company has moved its San Francisco, Cal., office from the Monadnock building to 140 Spear street.

D. M. Gillespie, manager of the district office of the White Motor Truck Company, with headquarters at Omaha, Neb., has been promoted to manager of the western district, with headquarters at Denver, Colo.

A. R. Pinney has joined the sales force of the Bonney Forge & Tool Works, Allentown, Pa., manufacturers of chrome vanadium wrenches. He has been assigned territory including Pennsylvania, New Jersey and Maryland.

The Pacific Coast Forge Company, Inc., makers of spikes and bolts, has given a contract for the construction of an addition to its main plant at Seattle, Wash. The Austin Company, Cleveland, Ohio are the engineers and builders.

George W. Burrell, vice-president and assistant general manager of the Wellman-Seaver-Morgan Company, Cleveland, Ohio, has resigned. The resignation will take effect at the annual meeting of the company in the latter part of this month.

Paul T. Payne, district sales manager of the Dearborn Chemical Company, with headquarters at Indianapolis, Ind., has been given jurisdiction over the office at Birmingham in the Cotton States division, and at Atlanta in the South Atlantic division.

S. L. Henderson, who resigned from the engineering department of the Canadian National Railways in November 1925, now represents the railway appliances division of the American Fork & Hoe Company, with office at 17 Battery Place, New York City.

P. E. Krider, district manager of S. F. Bowser & Co., Inc., Ft. Wayne, Ind., with headquarters at Chicago, has been promoted to manager of railway sales to succeed E. M. Harshbarger, who has been appointed district manager, with headquarters at New York.

C. E. Graham, formerly senior vice-president of the Chesapeake & Ohio, has now severed his last connection with the property by resigning as vice-president of the Hocking Valley. Mr. Graham has entered the general railway supply business in New York City, with office at 51 East Forty-second street.

T. Holland Nelson has become associated in a consulting capacity with the Ludlum Steel Company, Watervliet, N. Y. Mr. Nelson is also vice-president of the William T. Bate & Sons Company, Conshohocken, Pa. He has been intimately connected with the development of rustless steel both in this country and in England.

The corporate name of Orton & Steinbrenner Company, Chicago, has been changed to the Orton Crane & Shovel Company. No change in the ownership, management or officers is involved, the name being changed to describe better the company's principal activity which is the manufacture and sale of locomotive cranes, crawling tread cranes, gas, electric and steam shovels, draglines and grab buckets.

The Virginia Equipment Company, makers of Virginia dust guards for the railroad industry, and the Michigan Head Lining Company, makers of cooperage products, which have for several years been operated as separate companies under the same ownership and management, have been consolidated into one corporation to be known as the Lacey Williams Company, with general office in the Hanna building, Cleveland, Ohio.

The Northwestern Motor Company, Eau Claire, Wis., has appointed the following representatives: W. Newton Jeffress, Inc., Washington, D. C., Shaffner & Allen, New York, Otis B. Duncan, Chicago, A. A. Culp, Birmingham, Ala., William J. Roehl, St. Louis, Mo., Rank & Goodell, St. Paul, Minn., the W. H. Worden Company, San Francisco, Cal., the Western

Railway Supply Company, Portland, Ore., and the Koppel Industrial Car & Equipment Company, Koppel, Pa. W. Newton Jeffress of the Washington office has been appointed manager of sales for the Eastern region.

Locomotive Shipments in January

The Department of Commerce has prepared the following statement of locomotive shipments in January, based on reports received from the individual establishments, with shipments in previous months of 1924 and 1925 for comparison:

Year and month	Shipments			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
1924						
January	151	147	4	376	344	32
February	99	92	7	499	466	33
March	132	128	4	534	494	40
April	73	63	10	640	586	54
May	111	93	18	643	589	54
June	145	134	11	531	462	69
July	140	130	10	483	416	67
August	139	121	18	361	306	55
September	104	79	25	386	333	53
October	96	78	18	462	398	64
November	133	123	10	397	331	66
December	142	132	10	431	358	73
Total	1,465	1,320	145	...	...	...
1925						
January	90	45	45	407	351	56
February	85	73	12	397	343	54
March	109	93	16	447	351	96
April	92	82	10	477	362	115
May	96	68	28	467	353	114
June	110	61	49	397	300	97
July	66	58	8	378	283	95
August	104	91	13	309	225	84
September	94	50	44	363	296	67
October	79	54	25	497	397	100
November	98	52	46	548	448	100
December	*93	*75	18	*672	*576	*96
Total	1,116	802	314	...	...	...
1926						
January	113	91	22	580	526	54

*Revised.

General Railway Signal Company

The General Railway Signal Company's annual report for 1925 shows annual operating income of \$3,242,345 and net income after reserves for federal and state taxes of \$1,789,770 which compared with a balance available for dividends in 1924 of \$815,608. The company had a surplus as of December 31, 1925, of \$3,542,677 as compared with \$2,033,254, on December 31, 1924.

The value of unfilled orders on hand on January 1, 1926, was 2.3 times that at the beginning of 1925.

The pamphlet issue of the report contains a statement of the company's activities in automatic train control showing, up to the end of 1925, orders requiring the equipment of 20 complete divisions of 13 railways and of all road engines running over these divisions as follows:

Name of Railway	Between	(Number of) Track miles	Locomotive motives
Atlantic Coast Lines.....	Richmond, Va., & Rocky Mt., N. C.	209	61
Baltimore & Ohio.....	Baltimore, Md., & Washington, D. C.	73	130
Boston & Albany.....	Albany, N. Y., & Boston, Mass.	459	205
Chicago & Northwestern.....	Boone & Council Bluffs, Ia.	298	112
Cincinnati, N. O. & Texas Pacific.....	Ludlow, Ky., & Chattanooga, Tenn.	500	164
Cleveland, Cin., Chicago & St. L.....	Indianapolis, Ind., & Bridge Jct., Ill.	425	88
Delaware & Hudson.....	Whitehall & Rouses Pt., N. Y.	113	66
Lehigh Valley.....	Easton, Pa., & Newark, N. J.	179	150
Michigan Central.....	Detroit & Niles, Mich.	383	250
New York Central, East.....	Albany & Syracuse, N. Y.	581	248
New York Central, West.....	Buffalo, N. Y., & Cleveland, O.	684	333
N. Y., N. H. & Hartford.....	Hartford, Conn., & Springfield, Mass.	120	35
Pere Marquette.....	Lansing & Seymour, Mich.	139	66
Southern.....	Spencer, N. C., & Atlanta, Ga.	608	101
		4,771	2,009

In addition orders have been received for part divisional installations of train control on the Erie and the Kansas City Southern and for 240 engine equipments for use on several railways. Continuing, the statement says:

"During 1925 we shipped 788 engine equipments and it is expected that we will ship 1,461 in the first five months of 1926. All of our train control devices in service, of both the intermittent and the continuous types, are working in a highly satisfactory

manner and it is believed that during the year additional important orders for them will be placed with us, particularly as many railway operating officers who were formerly skeptical as to the value of automatic train control have come to recognize after observation of its performance that its use will lessen the hazards of train operation without decreasing line capacity."

Pressed Steel Car Company to Absorb Western Subsidiary

Stockholders of the Pressed Steel Car Company will vote at their annual meeting on February 17 on a proposal for the merger into that company of the Western Steel Car & Foundry Company, all the stock of which is owned by the parent company and on a proposal for a change in the capital structure, calling for the establishment of cumulative preferred stock.

At the present time the authorized capital stock of the Pressed Steel Car Company is \$12,500,000 preferred and \$50,000,000 common, of which there are outstanding \$12,500,000 preferred and \$12,500,000 common. The dividends on the preferred stock are non-cumulative and are payable at a rate not to exceed 7 per cent. It is proposed that the merged company will have a total capital of \$16,200,000 preferred and \$46,300,000 common. The new preferred stock is to be entitled to 7 per cent cumulative preferred dividends. It is convertible at the option of the holders, share for share, into new common stock and is subject to redemption on any quarterly dividend payment date on sixty days notice at \$110 and accrued dividends. It will have equal voting rights with the new common. Under the terms of the merger agreement, holders of the present non-cumulative preferred stock will receive for each \$100 par value of such stock, \$100 new preferred or \$100 new common and \$20 new preferred. The common shareholders will receive for each \$100 par value of present common, \$100 par value of new common stock and \$20 new preferred. The purposes of the merger are to derive economics of operation and to eliminate controversies "concerning the legal construction of the present charter of your company and the respective rights of the preferred and common stockholders in corporate assets and earnings in which your company and other companies having similar charter provisions are now involved."

Obituary

Morris K. Riggs, general manager of the Toledo plant of the American Bridge Company, died on February 7 after a brief illness.



Steel Mills, Sydney, N. S.

Railway Construction

BOSTON & ALBANY.—A contract has been awarded to the New England Construction Company, Springfield, Mass., for grading and extending culverts for third track from Warren, Mass., to West Warren.

DENVER & SALT LAKE.—The Interstate Commerce Commission has made public a proposed report by Examiner Watson recommending that this company's application for a certificate for the construction of a line from Provo, Utah, to Craig, Colo., be denied without prejudice on the ground that the project bears evidence of insufficient study for an undertaking of its magnitude and involves an element of too much uncertainty. It is stated that no plan for financing has been presented, that the line has not been definitely located, and that while the company estimated the cost of construction at \$6,802,400 in its return to the commission's questionnaire, it presented a witness at the hearing who estimated it at \$10,523,100, without equipment.

KANSAS CITY SOUTHERN.—Company forces will construct the following facilities: A pumping station and approximately 9,000 ft. of pipe line at Shreveport, La., to cost \$27,000, and a seven-stall extension to the roundhouse at Heavener, Okla., to cost \$65,000.

LOS ANGELES & SALT LAKE.—Bids are being received for the construction of living quarters for company employees in Cedar City, Utah, to cost \$25,000. Company forces will construct the following facilities: an 18,000-gal. per hour capacity water softener with pipe lines and stand pipe at Lynndyl, Utah, to cost \$26,000; 20 additional cabins for tourists at Bryce Canyon, Utah, to cost \$120,000; 15 additional cabins for tourists, and the enlargement of the present pavilion by adding wings and an extension of the second story over one-half of each additional wing at Zion National Park, Utah, to cost \$120,000.

LOUISVILLE & NASHVILLE.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of 13.87 miles of new line from Chevrolet station on its Martin's Fork branch to a point on its Cumberland Valley division near Hagans, Virginia, and the acquisition of trackage rights over the Interstate from Norton, Va., southeasterly about 18 miles to Miller yard on the Carolina, Clinchfield & Ohio, at an estimated cost of \$5,287,000. One of the conditions imposed by the commission in authorizing a lease of the Clinchfield by the L. & N., and the Atlantic Coast Line was that the L. & N., apply for a certificate for a connection from its Eastern Kentucky division to the Clinchfield and the company had obtained an extension of time until February 1 in which to complete its study of various possible routes. However, application was not made at this time for a connection with the McRoberts and Hazard coal fields on the Eastern Kentucky division on the ground that study has disclosed that its construction at this time "would not be economically feasible or in the public interest" and the commission was asked to suspend as much of its condition as refers to the connection with the Eastern Kentucky division. A map was filed with the application showing other lines investigated and located, including a further extension from Hagans to Speer's Ferry, Va., 39.5 miles, at a cost of \$10,396,000, which the application says it is believed will be afterwards constructed; also a line from Louellen, Ky., to Appalachia, Tenn., 20.77 miles at a cost of \$5,311,700; a line from Ulvah to Chad, Ky., 18.12 miles, at a cost of \$6,967,500; a line from Wentworth to a connection with the Sandy Valley & Elkhorn, 5.51 miles, at a cost of \$1,129,000; and a line from Jewell to Elkhorn City, Ky., 15.33 miles, at a cost of \$4,520,000. It is stated that the best route from the Eastern Kentucky division would be from Wentworth to Elkhorn City, 26.41 miles, via the S. V. & E., and Jewell, Ky., and that the best line from the Harlan county field would be that from Chevrolet to Speer's Ferry, of which it is now proposed to build the first part, and that this will afford a new merchandise route between the Southeast and Louisville and Cincinnati.

MICHIGAN CENTRAL.—Construction of the following facilities has been authorized: Power plant for shops at West Detroit,

Mich., to cost \$215,000; inbound freight house at Detroit to cost \$100,000; office building for the operating department at West Detroit to cost \$54,000.

MISSOURI PACIFIC.—The contract for the construction of a one-story brick freight station, 40 ft. by 240 ft., at McGehee, Ark., reported in the *Railway Age* of January 9, has been awarded to the Herman & McCain Construction Co., Little Rock, Ark.

NEW YORK CENTRAL.—A contract has been awarded to the Erie City Iron Works, New York, for the manufacture, delivery and erection at Avis, Pa., of three vertical water-tube boilers of 500 hp. capacity with settings and furnaces for burning pulverized coal, together with smoke breechings in the power station.

NEW YORK CENTRAL.—A contract has been awarded to the General Electric Company for the conversion of high tension feeder oil switches in five of this company's sub-stations in the New York electrified zone and of generator load limiting reactors in switch houses at Yonkers, N. Y., and Port Morris; changes in generator neutral connections and bus tie oil switches at the Yonkers and Port Morris powerhouses; reinforcing of high tension bus, relocating station transformers, one new 750 KVA transformer with secondary connections and switching equipment and a Kenetron cable testing set for the Port Morris powerhouse; total estimated cost, \$315,000.

NORFOLK & WESTERN.—A contract has been awarded to the Roberts & Schaefer Company, Chicago, for the construction of a 2,000-ton, 6-track, automatic electric, roller skip type coaling station and gravity sanding plant at Portsmouth, Ohio, to cost approximately \$125,000.

OREGON SHORT LINE.—Company forces will construct the following facilities, plans for which have been prepared: a 50,000-gal. wooden water tank, on a 27-ft. tower with water column and 10,500 ft. of 6-in. pipe line, at Georgetown, Idaho, to cost \$32,000; a brick boiler washout building, 34 ft. by 44 ft., equipped with four tanks and four pumps, at Pocatello, Idaho, to cost \$42,000; a power plant and equipment at Pocatello, to cost \$79,000; a 200,000-gal. steel water tank with two pumps, at Salt Lake City, Utah, to cost \$33,000; a freight and passenger station at American Falls, Idaho, to cost \$26,000; a 350-ton mechanically operated coal chute with pneumatic sanding facilities, at Ontario, Ore., to cost \$71,000.

PENNSYLVANIA.—A contract has been let to the Keystone State Corporation, Philadelphia, Pa., for the construction of a passenger tunnel from North Philadelphia station to the new city subway at Broad street and Glenwood avenue. The cost will be about \$40,000.

PENNSYLVANIA.—Bids will be asked for in the latter part of March for a double track, reinforced concrete viaduct to replace the existing tracks at grade from Twenty-fifth street and Grays Ferry avenue, crossing Washington avenue to Passyunk avenue, in Philadelphia, Pa., a length of 1½ miles, eliminating 13 grade crossings. Twenty-fifth street will be opened underneath and along both sides of the viaduct. Twenty or more cross streets will pass under the new viaduct. The cost of the work will be \$3,000,000, of which 50 per cent will be paid by the city of Philadelphia and 50 per cent by the railroad company.

SOUTHERN PACIFIC.—Plans are being prepared for the construction of a freight station at West Bakersfield, Cal., to cost \$170,000.

ST. LOUIS CONNECTING.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line of 9.2 miles, from Collinsville, Ill., to St. Jacob, as a change of location for the Pittsburgh, Cincinnati, Chicago & St. Louis.

THE GERMAN RAILWAYS, which are theoretically operating as a private enterprise under the Dawes plan, are apparently in danger of having a maximum amount of state interference in their affairs. The first obligation of the lines is to meet the payments under the Dawes plan. The Ministry of Labor has awarded the employees of the railways an increase in wages, which the railways are fighting in the courts. If they lose, it is feared that the whole idea of operating the properties as a business enterprise may be imperiled.

Railway Financial News

ANN ARBOR.—*Loan.*—This company has applied to the Interstate Commerce Commission for an extension for one year of the date of payment of a loan of \$250,000 made by the government in 1921, maturing February 1, 1926, offering to make a partial payment of \$25,000.

BALTIMORE & OHIO.—*Equipment Trust.*—The Interstate Commerce Commission has approved the issuance of \$8,370,000 4½ per cent equipment trust certificates, series C sold to Kuhn, Loeb & Co. and Speyer & Co. at 97 giving an annual cost to the carrier of approximately 4.99 per cent. The certificates mature in equal semi-annual amounts on February 1 and August 1, 1927 to 1941. The equipment includes 25 freight locomotives, 4,000 box cars, 1,000 hopper cars and 5 dining cars having an approximate total cost of \$11,191,667. Sale of the bonds to the public was reported in the *Railway Age* of January 16.

Application to I. C. C.—The Baltimore & Ohio has applied to the Interstate Commerce Commission for authority to issue \$34,308,500 and sell \$30,000,000 of refunding and general mortgage bonds, to reimburse the treasury, pay off notes to the United States government and for other purposes. The bonds have been sold, subject to approval, to Kuhn, Loeb & Co. and Speyer & Co. at 92½. Sale to the public was reported in the *Railway Age* of January 30.

CAROLINA & YADKIN RIVER.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes to be \$766,538 as of 1915.

CENTRAL INDIANA.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes to be \$1,904,560 as of 1917.

CENTRAL INDIANA.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Muncie, Ind., to Waveland Junction, 96 miles and a branch from Sand Creek, Ind., to Brazil, 21.69 miles. The application says that the company has not earned its operating expenses and taxes since 1903 except in the year 1923. The entire stock of the company is owned by the Pennsylvania Company and the Cleveland, Cincinnati, Chicago & St. Louis.

CHESAPEAKE & OHIO.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Island Creek.

CHICAGO, MILWAUKEE & ST. PAUL.—*Hearings Resumed.*—Hearings in the investigation of the receivership of the Chicago, Milwaukee & St. Paul were resumed on February 8, in Chicago. Evidence was submitted to prove that the purchase of the Chicago, Terre Haute & Southeastern was an advantage since the latter road gave the St. Paul access to coal fields and afforded the opportunity to save freight charges on coal. Testimony presented dealt with the analysis of the coal from Indiana mines and the advantages gained through the use of specific grades. L. K. Sillcox, general superintendent of motive power of the Chicago, Milwaukee & St. Paul compared the efficiency of locomotive operation when the different kinds and sizes of coal were used. The chief chemist of the Chicago, Milwaukee & St. Paul presented an exhibit of the chemical analyses of the several mines from which coal was purchased. An engineman testified as to the practical advantages of firing with lump coal over mine run. C. E. Trotter, supervisor of fuel performance of the New York, Chicago & St. Louis presented records of tests made by that road on Indiana coal to show the performance of locomotives using the coal from several mines.

CHICAGO, ROCK ISLAND & PACIFIC.—*Bonds Authorized.*—The Interstate Commerce Commission has approved the issue of \$1,000,000 general mortgage bonds to be delivered to the trustee under the first and refunding mortgage and the issuance of \$1,000,000 first and refunding mortgage bonds to be pledged as collateral security for short term notes.

COLFAX NORTHERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon

a line from Colfax, Ia., to the mine of the Colfax Consolidated Coal Company, 6 miles.

CLARION RIVER.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Croyland to Hallton, Pa., 12 miles.

DULUTH & NORTHEASTERN.—Abandonment.—The Interstate Commerce Commission has authorized the abandonment of a branch from Brevator Junction, Minn., to Brevator, four miles, which formerly served lumbering operations.

HOCKING VALLEY.—Notes.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$6,000,000 of six months 5 per cent secured notes, to pay a like amount of notes maturing March 1, and to pledge as security \$7,500,000 of general mortgage bonds.

JOLIET UNION DEPOT COMPANY.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be \$391,270 as of June 30, 1917.

KEESEVILLE, AUSABLE CHASM & LAKE CHAMPLAIN.—Final Value.—The Interstate Commerce Commission has placed the final value for rate-making purposes as of 1916 at \$113,619.

LAKE CHAMPLAIN & MORIAH.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes to be \$700,000 as of 1916.

KENNEBEC CENTRAL.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes as of 1916 to be \$70,700.

MAINE CENTRAL.—1925 Earnings.—Preliminary earnings statement for 1925 shows surplus after charges of \$1,177,000 as compared with \$389,022 in 1924.

MARION & RYE VALLEY.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes to be \$317,177 as of 1916.

MARYLAND & DELAWARE COAST.—Notes Authorized.—The Interstate Commerce Commission has authorized this carrier to issue \$25,000 six per cent promissory notes, payable in four months, and to pledge all or part of \$75,000 first mortgage 20-year sinking fund 6 per cent bonds as security.

MINERAL POINT & NORTHERN.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes as of 1917 to be \$556,927.

MOUNTAIN CENTRAL.—Final Value.—The Interstate Commerce Commission has found the final value for rate-making purposes to be \$58,005 as of 1917.

NEW ORLEANS, TEXAS & MEXICO.—Equipment Trusts.—The Interstate Commerce Commission has approved the issuance of \$750,000 equipment trust certificates, series B, paying 4½ per cent interest and maturing in equal annual installments to December 1, 1940. The trusts are to be sold at not less than 96.25 to Kuhn, Loeb & Co., making a cost to the carrier of 5½ per cent annually. They were offered to the public in December, as reported in the *Railway Age* of December 19. The equipment includes 10 locomotives, 12 passenger train cars and 50 gondola cars, of a total approximate cost of \$1,102,341.

NEW YORK CONNECTING.—Bonds Authorized.—The Interstate Commerce Commission has authorized an issue of \$3,333,000 first mortgage bonds, series B, paying 5 per cent, to be sold to Kuhn, Loeb & Co. and J. P. Morgan & Co. at 97¼ and authority has been granted to the New York, New Haven & Hartford and the Pennsylvania to assume obligation as guarantors of the bonds. The application was for \$3,500,000, but the commission held that the company showed justification only for the smaller amount. Sale of the bonds to the public was reported in the *Railway Age* of January 9.

OKLAHOMA & RICH MOUNTAIN.—Stock.—This company has applied to the Interstate Commerce Commission for authority to issue \$100,000 of common stock for construction purposes.

PENNSYLVANIA, OHIO & DETROIT.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon the Apple Creek branch from Kramore, Ohio, to West Lebanon, 9.5 miles.

PEORIA TERMINAL COMPANY.—Acquisition.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the acquisition and operation of the line of the Peoria Railway Terminal Company, and for authority to issue \$1,500,000 of general mortgage bonds and \$500,000 of stock.

SAN ANTONIO, UVALDE & GULF.—Tentative Valuation.—The interstate Commerce Commission in a tentative valuation report has placed the final value for rate-making purposes of the property owned and used for common-carrier purposes as of 1919 at \$4,204,300.

SANDY VALLEY & ELKHORN.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$2,320,000 of refunding and general mortgage bonds.

ST. LOUIS CONNECTING.—Stock.—This company has applied to the Interstate Commerce Commission for authority to issue \$100,000 of stock for the purpose of constructing 9.2 miles of line as a change of location for the Pittsburgh, Cincinnati, Chicago & St. Louis, and the Pennsylvania has applied for authority to acquire control of the company.

ST. LOUIS-SAN FRANCISCO.—Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$7,800,000 of 4½ per cent equipment trust certificates, to be sold to Speyer & Co., and J. & W. Seligman & Co., at 97.

TENNESSEE CENTRAL.—Bonds Sold.—White, Weld & Co. and the American National Company, Nashville, Tenn., have offered \$3,000,000 six per cent first mortgage bonds series A, dated April 1, 1922, and payable April 1, 1947. The price was \$100. The issue is secured by a first mortgage on the entire mileage owned and on all property to be acquired later. The railway is a direct route between eastern and western Tennessee and comprises about 295 miles of main track. Net earnings available for bond interest for the past three years have been more than twice the bond interest.

TEXAS & PACIFIC.—1925 Earnings.—Preliminary statement of earnings for 1925 shows net income after charges of \$3,821,555 in 1925, equivalent, after allowance for 5 per cent preferred dividends to \$6.59 a share on the \$38,755,110 common stock as compared with net after charges in 1924 of \$3,878,591 or \$7.01 per share of common.

VIRGINIAN.—1925 Earnings.—Preliminary statement of earnings for 1925 shows net corporate income after charges of \$3,859,777 equivalent after allowance for 6 per cent dividends on the preferred stock to \$6.98 a share on the \$31,271,500 outstanding common stock. Net in 1924 was \$3,315,141 equivalent to \$5.24 a share on the common stock.

WESTERN NEW YORK & PENNSYLVANIA.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Tryonville, Pa., to Lincolnville, 7 miles.

Dividends Declared

Cripple Creek Central.—Preferred, 1 per cent, payable February 15 to holders of record March 1.

New York, Chicago & St. Louis.—Common, 1½ per cent, quarterly; preferred, 1½ per cent, quarterly; both payable April 1 to holders of record February 15.

Average Price of Stocks and Bonds

	Feb. 9	Last Week	Last Year
Average price of 20 representative railway stocks	94.67	95.38	82.78
Average price of 20 representative railway bonds	95.14	95.05	90.61

Railway Officers

Executive

N. S. Brown has been elected vice-president and general solicitor of the Ann Arbor and the Manistique & Lake Superior, and **J. W. Newell** has been elected vice-president, both with headquarters at St. Louis, Mo.

C. E. Graham, who resigned as senior vice-president of the Chesapeake & Ohio in 1924, has also resigned as vice-president of the Hocking Valley and has entered the general railway supply business with headquarters at New York.

C. C. Ray, assistant general manager and traffic manager of the DeQueen & Eastern, with headquarters at DeQueen, Ark., has also been appointed vice-president of the Texas, Oklahoma & Gulf, with the same headquarters.

Operating

C. M. Potter, yardmaster on the Erie and Ashtabula division of the Pennsylvania, has been promoted to assistant trainmaster of the Akron division, with headquarters at Columbus, Ohio.

T. H. Levy, superintendent of transportation of the Gulf Coast Lines and the International-Great Northern, with headquarters at Houston, Tex., has been given the title of general superintendent of car service and transportation, with the same headquarters, a newly created position.

J. R. Coulter, trainmaster of the Little Rock division of the Missouri Pacific, with headquarters at McGehee, Ark., has been transferred to the Ferriday and Swartz districts of the Louisiana division, with headquarters at Ferriday, La., succeeding **J. C. King**, who has resigned. **B. H. Layne**, has been appointed trainmaster of the Little Rock division, with headquarters at McGehee in place of Mr. Coulter.

E. E. Cunningham, acting superintendent of the Los Angeles division of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., has been appointed superintendent of the



E. E. Cunningham

Los Angeles division. He was born in March, 1875, at Kenosha, Wis., and entered railway service in 1891 as an employee in the round-house of the Chicago & North Western at Hawarden, Iowa. He later served as brakeman, yardmaster and terminal trainmaster of the Chicago terminal, entering the service of the Union Pacific as trainmaster of the Western division in 1917. Mr. Cunningham was transferred to the Los Angeles & Salt Lake as terminal trainmaster in 1922. He was promoted to acting superintendent of the Los Angeles division in June, 1924, and held that position until his recent appointment as superintendent of the Los Angeles division.

G. T. Stanton, telegraph and telephone engineer of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Indianapolis, Ind., has been promoted to telegraph and telephone engineer of the New York Central Lines, with headquarters at New York, succeeding **J. L. Niesse**, who has

been promoted to joint superintendent of telegraph of the Big Four, the Cincinnati Northern, the Peoria & Eastern and the Evansville, Indianapolis & Terre Haute.

Gerard Van Tassel, who has been appointed assistant to the general superintendent of the New York Terminal district of the New York Central and the Ottawa & New York, was born on January 11, 1856, at North Salem, Westchester county, N. Y., and was educated at the North Salem Academy. He entered railway service in the spring of 1872 as a telegraph operator for the New York Central & Hudson River, at Croton Falls, N. Y., and, until 1880 was an operator at various stations. From 1880 to 1889 he was train dispatcher at Dover Plains, N. Y., and from 1889 to 1900 was chief dispatcher at White Plains, N. Y. In 1900 he became trainmaster of the Harlem division, which position he held until March 6, 1907, when he became superintendent of the same division. On July 12, 1909, he also became superintendent of the Putnam division, which position he was holding at the time of his recent appointment as assistant to the general superintendent of the New York Terminal district.

Henry H. Garrigues, who has been promoted to general superintendent of the Eastern Pennsylvania division of the Pennsylvania, with headquarters at Harrisburg, Pa., was born



H. H. Garrigues

on September 4, 1881, at Harrisburg, Pa., was educated at Haverford School and Haverford College. He entered railway service on February 18, 1901, as a rodman on the Belvidere division of the Pennsylvania, at Lambertville, N. J., and was later transferred in the same capacity to Philadelphia and Harrisburg on the Philadelphia division. He then became transitman at Altoona, Pa. He was assistant supervisor at Altoona, Pitcairn, Pa., and Perryville, Md., from January 16, 1904, to December 1, 1908, and on the latter date be-

came supervisor of the Allegheny division. In this capacity he was transferred successively to the Atlantic, Philadelphia and Baltimore divisions, and later was employed in the valuation department and the general manager's office. On December 8, 1917, he became division engineer on the Trenton and Philadelphia Terminal division, and on March 1, 1920, was promoted to engineer maintenance of way, which position he held until May, 1920. Since this time he has been superintendent successively of the Delaware, Atlantic, Philadelphia Terminal and the Cleveland & Pittsburgh divisions, and, at the time of his recent promotion to general superintendent of the Eastern Pennsylvania division, was general superintendent at Chicago.

Traffic

F. H. Cusack has been appointed assistant general freight agent of the Michigan Central, with headquarters at Chicago, a newly created position.

Francis Boardman has been appointed assistant terminal manager of the New York Central. The position of manager of buildings has been discontinued.

W. G. Trufant has been appointed general agent of the Denver & Rio Grande Western, with headquarters at New York, succeeding **E. C. Pate**, acting general agent, who has resigned.

H. R. Bullen, assistant general agent, passenger department, of the Canadian National, with headquarters at Los Angeles,

Cal., has been promoted to general agent, with the same headquarters.

Nat Duke has been promoted to general freight traffic manager of the Delaware, Lackawanna & Western, with headquarters at New York; **J. J. Byrne** to freight traffic manager; **C. F. McTague** to assistant freight traffic manager; **A. B. Wallace** to general freight agent, and **W. J. Daily** to assistant general freight agent. The position of general foreign freight agent has been discontinued, the duties being transferred to **H. G. E. Pansius**, foreign freight agent, with headquarters at New York.

Mechanical

M. R. Benson has been appointed division master mechanic of the Michigan Central, with headquarters at St. Thomas, Ont., succeeding **E. R. Webb**, relieved at his own request on account of health.

W. D. Freeman has been appointed master mechanic of the North Carolina division of the Seaboard Air Line, with headquarters at Hamlet, N. C., succeeding **T. J. Raycroft**, resigned. **J. J. Hanlin** has been appointed master mechanic of the Georgia division, with headquarters at Atlanta (Howells), Ga., succeeding **G. W. Gilleland**, who has been appointed superintendent of motive power of the Central and Southern districts, with headquarters at Jacksonville, Fla., succeeding Mr. Hanlin.

Engineering, Maintenance of Way and Signaling

A. F. Dorley, district engineer of the Missouri Pacific at St. Louis, Mo., **E. B. Fithian**, district engineer at Kansas City, Mo., and **W. H. Vance**, district engineer at Little Rock, Ark., have each been given the title of assistant engineer maintenance of way, with the same respective headquarters, and the offices of district engineer have been abolished.

William Morrison, assistant signal engineer of the Electric division of the New York Central, with headquarters at New York, has been appointed signal engineer of the Grand Central Terminal and the Electric division, with the same headquarters. Mr. Morrison was born on December 6, 1868, in New Brunswick, Canada, and was educated in the public schools. From 1892 to 1895 he was with the Union Switch & Signal Company as foreman and wireman on signal construction, and from 1895 to 1901 was signal maintainer on the Boston & Maine. He returned to the Union Switch & Signal Company in 1901 as foreman of signal construction, and in 1904 entered the service of the Interborough Rapid Transit Company as assistant signal engineer, where he remained until 1906. At that time he became assistant signal engineer of the New York Central. In 1920 he became assistant engineer of the Electric division of the New York Central, which position he was holding at the time of his recent appointment to signal engineer of Grand Central Terminal.



W. Morrison

Purchasing and Stores

W. H. Grant, general tie agent of the Canadian National, with headquarters at Montreal, has retired from service.

R. C. Harris, who has been promoted to assistant stores manager of the Pennsylvania, was born on May 8, 1874, at Richmond, Ind., and was educated at Purdue University. He entered railway service on August 8, 1897, as a rodman on the Pennsylvania, Lines West of Pittsburgh, which position he held until 1901, when he became assistant division engineer. In 1904, he was promoted to division engineer, and in 1913, became supervising engineer of the same lines. In 1918 he became general storekeeper of the Pennsylvania, Lines West, which position he held until the reorganization of the system in 1920, when he was appointed to a similar position on the Central Region of the Pennsylvania. This position he was holding at the time of his recent promotion to assistant stores manager.



R. C. Harris

Special

George O. Brophy, who has been appointed special representative, department of public relations, of the Union Pacific, with headquarters at Omaha, Neb., was born on November 14, 1864, at Eagle, Wis., and entered railway service in August, 1888, as a brakeman on the Union Pacific. He was promoted to conductor in August, 1892, and held that position until October, 1909, when he was promoted to special traveling passenger agent. Mr. Brophy was promoted to trainmaster in March, 1911, and in February, 1915, was promoted to superintendent of the Wyoming division at Cheyenne, Wyo. He was transferred to the Nebraska division in November, 1915, where he remained until June, 1918, when he was promoted to general superintendent of the Southern district, with headquarters at Kansas City, Mo. Mr. Brophy was appointed superintendent of the Kansas division in May, 1919, holding that position until June, 1923, when he was promoted to assistant to the general solicitor, with headquarters at Omaha, Neb. He returned to the Kansas division as superintendent in June, 1924, where he remained until his recent appointment as special representative of the public relations department.



G. O. Brophy

Obituary

George D. Squires, a member of the Railroad Commission of California, died at San Francisco, Cal., on January 31.

Harry A. Adams, assistant to the general manager of the Union Pacific, with headquarters at Omaha, Neb., died in Los Angeles, Cal., on January 29, of pneumonia. He was in charge of the safety movement on the Union Pacific and also held a commission as major in command of the 614th Engineers Battalion, the military railway organization of the road.